MATRIX™

Strong. Smart. Beautiful.

A7XE-04 ASCENT TRAINER
SERVICE MANUAL

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CHAPTER 1: SERIAL NUMBER LOCATION

1.1 SERIAL NUMBER LOCATION

SERIAL NUMBER LOCATION

1.1 SERIAL NUMBER LOCATION - CONTINUED

UNIVERSAL CONSOLE SERIAL NUMBER LOCATION

CONSOLE SERIAL NUMBER LOCATION

CHAPTER 2: IMPORTANT SAFETY INSTRUCTIONS

2.1 READ AND SAVE THESE INSTRUCTIONS

This Ascent Trainer is intended for commercial use. To ensure your safety and protect the equipment, read all instructions before operating the MATRIX Ascent Trainer.

When using an electrical product, basic precautions should always be followed including the following:

- ***An appliance should never be left unattended when plugged in. Unplug the unit from the outlet when not in use and before putting on or taking off any parts.***
- ***This product must be used for its intended purpose described in this service manual. Do not use other attachments that are not recommend by the manufacturer. Attachments may cause injury.***
- ***To prevent electrical shock, never drop or insert any object into any opening.***
- ***Do not remove the console covers. Service should only be done by an authorized service technician.***
- ***Never operate the Ascent Trainer with the air opening blocked. Keep the air opening clean, free of lint and hair.***
- ***Do not carry this unit by it's supply cord or use the cord as a handle.***
- ***Close supervision is necessary when the Ascent Trainer is used by or near children or disable persons.***
- ***Do not use outdoors.***
- ***Do not operate where aerosol (spray) products are being used or when oxygen is being administered.***
- ***To disconnect, turn all controls to the off position, then remove the plug from the outlet.***
- ***Connect this Ascent Trainer to a properly grounded outlet only.***
- ***Do not use the equipment in any way other than designed or intended by the manufacturer. It is imperative that all Matrix Fitness Systems equipment is used properly to avoid injury.***
- ***Keep hands and feet clear of moving parts at all times to avoid injury.***
- ***Unsupervised children must be kept away from this equip ment.***
- ***Do not wear loose clothing while on the equipment.***

CAUTION! ***If you experience chest pains, nausea, dizziness, or shortness of breath, stop exercising immediately and consult your physician before continuing.***

CAUTION! ***Any changes or modifications to this equipment could void the product warranty.***

2.2 ELECTRICAL REQUIREMENTS

The Matrix Ascent Trainer can now be self powered, but it recommended that the 7xe version of the Ascent Trainer be plugged in. If the A7xe is left in self powered mode, it will take approximately 30 seconds for the screen to load prior to every workout. It is recommended that the unit be plugged in for at least 4 hours after initial installation to charge the battery prior to using the self powered feature. ***NOTE:*** If an add on TV (using a bracket) or Virtual Active is added to the unit, it must be plugged in, or the TV or VA will not operate correctly. If the Ascent Trainer will be plugged in, follow the requirements below.

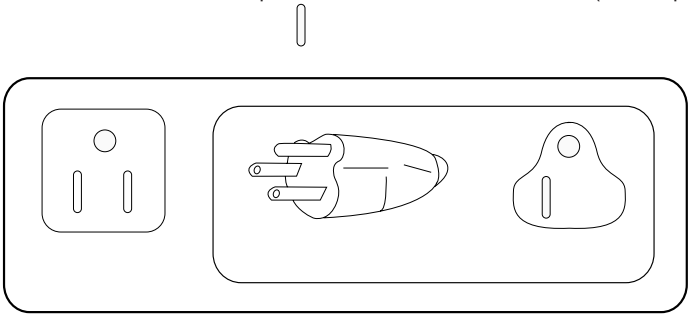
MATRIX DEDICATED CIRCUIT/ELECTRICAL REQUIREMENT INFO

All Matrix Ascent Trainers require the use of a 15 amp or 20 amp "dedicated circuit," with a non-looped (isolated) neutral/ground, for the power requirement. Quite simply this means that each outlet you plug Ascent Trainers into should not have anything else running on that same circuit besides other Ascent Trainers (up to 3 per 15 amp circuit and 4 per 20 amp circuit). The easiest way to verify this is to locate the main circuit breaker box, and turn off the breaker(s) one at a time. Once a breaker has been turned off, the only thing that should not have power to it are the Ascent Trainers in question. No lamps, vending machines, fans, sound systems, or any other item should lose power when you perform this test.

Non-looped (isolated) neutral/grounding means that each circuit must have an individual neutral/ground connection coming from it, and terminating at an approved earth ground. You cannot "jumper" a single neutral/ground from one circuit to the next.

In addition to the dedicated circuit requirement, the proper gauge wire must be used from the circuit breaker box, to each outlet that will have the maximum number of units running off of it. If the distance from the circuit breaker box, to each outlet, is 100 ft or less, then 12 gauge wire may be used. For any distance greater than 100 ft from the circuit breaker box to the outlet, 10 gauge wire must be used.

For your safety and Ascent Trainer performance, the ground on this circuit must be non-looped. Please refer to NEC article 210-21 and 210-23. Your Ascent Trainer is provided with a power cord with a plug listed below and requires the listed outlet. Any alterations of this power cord could void all warranties for this product. Multiple Ascent Trainers can be powered on one dedicated circuit. (3 units per 15 Amp and 4 units per 20 Amp dedicated circuit.)



GROUNDING INSTRUCTIONS:

The Matrix Ascent Trainer must be grounded. If it should malfunction or break down, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. The Ascent Trainer is equipped with a cord having an equipment grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances. If the user does not follow these grounding instructions, the user could void the Matrix limited warranty.

DANGER: Improper connection of the equipment grounding conductor can result in the risk of electric shock. Check with a qualified electrician if the user is in doubt as to whether the product is properly grounded. Do not modify the plug provided with the product if it will not fit the outlet, have a proper outlet installed by an electrician

CONSOLE POWER

The Matrix Ascent Trainer console has a battery that makes it self powered. This means that even if the unit is not plugged in, the console may still have power for up to 12 hours. If the console power needs to be reset or turned off, press and hold the CHANNEL UP and CHANNEL DOWN keys for 3-5 seconds until the console turns off. The console power will also need to be reset if settings are changed in Manager, Engineering, or Service Modes.

CHAPTER 3: PREVENTATIVE MAINTENANCE

3.1 RECOMMENDED CLEANING TIPS

Preventative maintenance and daily cleaning will prolong the life and look of your MATRIX Ascent Trainer.

Please read and follow these tips.

- Position the equipment away from direct sunlight. The intense UV light can cause discoloration on plastics.
- Locate your equipment in an area with cool temperatures and low humidity.
- Clean with a soft 100% cotton cloth.
- Clean with soap and water or other non-ammonia based all purpose cleaners.
- Wipe foot pads, handles, heart rate grips, and handlebars clean after each use.
- Do not pour liquids directly onto your equipment. This can cause damage to the equipment and in some cases electrocution.
- Check pedal motion and stability.
- Adjust leveling feet when equipment wobbles or rocks.
- Maintain a clean area around equipment, free from dust and dirt.

3.2 CHECK FOR DAMAGED PARTS

DO NOT use any equipment that is damaged or has worn or broken parts. Use only replacement parts supplied by Matrix Fitness Systems.

MAINTAIN LABELS AND NAMEPLATES. Do not remove labels for any reason. They contain important information. If unreadable or missing, contact Matrix Fitness Systems for a replacement. 1-866-693-4863, www.matrixfitness.com

MAINTAIN ALL EQUIPMENT Preventative maintenance is the key to smooth operating equipment. Equipment needs to be inspected at regular intervals. Defective components must be replaced immediately. Improperly working equipment must be kept out of use until it is repaired. Ensure that any person(s) making adjustments or performing maintenance or repair of any kind is qualified to do so. Matrix Fitness Systems will provide service and maintenance training at our corporate facility upon request or in the field if proper arrangements are made.

CHAPTER 3: PREVENTATIVE MAINTENANCE

3.3 CARE AND MAINTENANCE INSTRUCTION

In order to maximize life span, and minimize down time, all MATRIX equipment requires regular cleaning, and maintenance items performed on a scheduled basis. This section contains detailed instructions on how to perform these items, the frequency of which they should be done, and a check list to sign off each time service is completed for a specific machine. Some basic tools and supplies will be necessary to perform these tasks which include (but may not be limited to):

* Metric Allen wrenches
* #2 Phillips head screwdriver
* Adjustable wrench
* Torque wrench (capability to read foot lbs, and inch lbs)
* Lint free cleaning cloths
* Teflon based spray lubricant
* Mild, water soluble, detergent – such as “Simple Green”, or other Matrix approved product
* Teflon based spray lubricant such as “Super Lube”, or other Matrix approved product
* Vacuum cleaner with an extendable hose and crevasse tool attachment

Please find the worksheet sample for our equipment provided in this manual and make copies as needed. Keep them up to date as the required service / maintenance items are performed. It is critical that you also log the accumulated (total) amount of miles or running hours on the equipment each time service or maintenance is performed.

You may periodically see addendums to this document, as the Matrix Technical Support Team identifies items that require specific attention, the latest version will always be available on the Matrix website, www.matrixfitness.com

DAILY MAINTENANCE ITEMS

1) Clean the entire machine using water and mild detergent such as “Simple Green”, or other Matrix approved solutions (cleaning agents should be alcohol and ammonia free). ***NOTE:*** Never spray cleaner directly onto the equipment, spray cleaner onto a cloth and then wipe the equipment.

QUARTERLY MAINTENANCE ITEMS

1) Check all connecting joint areas for tightness of bolt assemblies.

2) Ensure that there is little, or no free play at all joint assemblies once bolts have been tightened. Installation of washer kits may be required if free play does not come out from tightening bolts.

3) Remove plastic covers, and lubricate the ball joint where the Link Arm and Handlebar join together. Use your finger to apply grease to the ball bearing. Matrix recommends using Superlube brand grease with PTFE {Teflon} additive.

4) Remove the shrouds, and lubricate the Acme screw on the incline motor (Matrix recommends using Superlube brand grease with PTFE {Teflon} additive).

YEARLY MAINTENANCE ITEMS

1) Remove the front round covers and check the belts for damage, alignment, and proper tension.

3.4 TOUCH SCREEN CARE & CLEANING

TOUCH SCREEN CARE AND CLEANING

* The touch screen requires very little maintenance. We recommend that you periodically clean the touch screen surface with a dry soft cloth. If necessary, we recommend the usage of Alcohol or Isopropyl Alcohol for difficult stains or sanitary purposes.

* It is very important to avoid using any other chemical on the touch screen.

* Always dampen the cloth and clean the screen. Do not spray the cleaning agent on the screen itself, the drips can seep into the display or stain the bezel.

* After cleaning, make sure the surface is dry. There should not be any left over solvent to seep into the display.

* It is very important to handle the touch screen with care. Do not use excessive force when cleaning.

* Do not use any sharp materials to clean the touch screen surfaces.

* Do not use high pressure air, water, or steam to clean the touch screen surface.

3.5 AUTO CALIBRATION PROCEDURE

AUTO CALIBRATION PROCEDURE

After initial installation or replacement of the incline motor, auto calibration should be run.

1) Press ENTER, 2, 0, 0, 1, ENTER on the keypad to go into Engineering Mode.
2) Press CALIBRATION on the display.
3) Press AUTO CALIBRATION on the display.
4) Press START on the display.
5) This will run the Auto Calibration. If the calibration passes, it will say complete. Press the HOME key to return to the normal start screen.
6) If the calibration does not pass, contact Matrix Customer Technical Support at 866-693-4863 ext 3.

CHAPTER 4: CONSOLE OVERLAY AND WORKOUT DESCRIPTION

4.1 CONSOLE DESCRIPTION

The A7xe has a fully integrated touch screen display. All information required for workouts is explained on screen. Exploration of the interface is high encouraged. The information explaining how to program for various workouts will give an explanation about the contents of each screen on the machine.

A7XE ENTERTAINMENT ZONE

IPOD®: Will take the user directly to the iPod screen to allow for iPod control and play list selection.

VOLUME UP / DOWN: Adjusts the volume output through the headphone jack of either the integrated console TV or the iPod output.

NUMBER KEYPAD: Allows for easy TV channel selections.

CHANNEL UP / DOWN: Allows for channel selection.

DISPLAY MODE: Allows user to cycle through console display options, iPod, TV, or profile display.

LAST CHANNEL: Allows the user to cycle between the current channel and the previous channel they were viewing.

4.2 WORKOUT SETUP STEPS

To set up a workout, press the touch screen over the program you would like to use and then follow the prompts to begin your workout.

GO - Press to immediately begin a workout. Workout, resistance level, and time will automatically go to default settings. Pressing GO will not prompt user for age, weight, or level settings.

MANUAL - Manual allows the user to input more information while defining their own workout. Calorie expenditure will be more accurate when inputting information in Manual than by pressing GO.

FAT BURN - Fat burn is a level based program that is designed to help users burn fat through various resistance level changes.

ROLLING HILLS - The Rolling Hills program is a level based program that automatically adjusts the resistance level to simulate real terrain.

INTERVALS - The Intervals program is a level based program that automatically adjusts the resistance of the machine from low to high intensity settings at regular intervals.

GLUTE TRAINING WORKOUT - This program was designed to increase your range of motion and target the thighs and glutes. By varying a high incline throughout the workout you can engage significant glute recruitment and enjoy a great workout. You will be asked to enter in a minimum resistance level and a maximum resistance level. The maximum resistance is applied at your peaks and the minimum resistance is applied in the valleys. Choose levels that are appropriate for you. A great recommended starting point is a Minimum Resistance Level of 1 and a Maximum Resistance Level of 8. After you are comfortable with this setting, try higher levels for both. Incline levels cannot be adjusted during this workout as it is an incline based workout.

TARGET HEART RATE - The Matrix Ascent Trainer comes with standard digital contact heart rate sensors and are POLAR telemetry compatible. The heart rate control workout mode allows the user to program their desired heart rate zone, and the Ascent Trainer will automatically adjust the level based upon the user's heart rate. The heart rate zone is calculated using the following equation: (220-Age)8%=target heart rate zone. The user must wear a POLAR telemetric strap or continually hold onto the contact heart rate grips for this workout.

Locate the metal sensors on the handlebars of the Ascent Trainer. Notice that there are two separate pieces of metal on each grip. You must be making contact with both pieces of each grip to get an accurate heart rate reading. You can grab these sensors in any program to view your current heart rate.

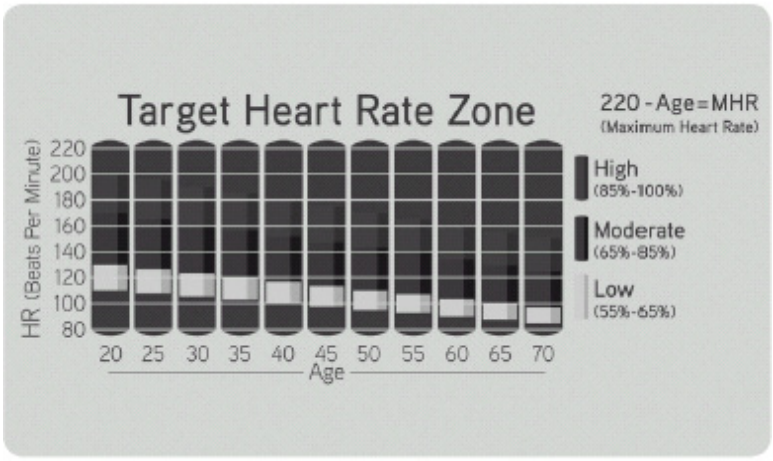
FITNESS TEST -The Cooper Fitness Test measures cardiovascular fitness and proves an estimated sub-maximal VO2 result. It is based on power output according to ACSM standards and was developed by the Cooper Institute© (www.cooperinstitute.org). User RPMs must remain between 60-80 RPM during the test. The test will end when the user can no longer maintain this speed. Use of a heart rate strap is optional but provides more data.

The test starts at a low intensity level and gradually increases in intensity (difficulty) every 2 minutes. As it increases, the user must maintain 60-80 RPM to advance to the next level. The test could take upwards of 30+ minutes for very fit individuals. Once the test ends a recovery period (cool down) will begin and the user's results are calculated and displayed. Results are based on the number of stages completed. Incline will not be adjustable during the test.

STAGE COMPLETE:

1	Well Below Average
2	Well Below Average
3	Below Average
4	Below Average
5	Average
6	Average
7	Above Average
8	Above Average
9+	Well Above Average

CONSTANT WATTS - Constant Watts is a unique program that allows you to vary your cadence or RPM and the Ascent Trainer's resistance level will adjust accordingly to your selected goal. The quicker you pedal, the less resistance for the goal selected.



CHAPTER 5: MANAGER MODE

5.1 MANAGER MODE OVERVIEW

The Manager's Custom Mode allows the club owner to customize the Ascent Trainer for the club.

1) To enter Manager Mode, press ENTER, 1, 0, 0, 1, ENTER on the lower keypad. Manager Mode will appear on the display (Figure A).

2) Follow the prompts to change the desired setting.

3) Press the ENTER key once the desired setting is correct to save.

4) Press HOME to return to normal operation. ***NOTE:*** If a setting has been changed, the unit and console power should be reset. Cycle the power switch, and press and hold the CHANNEL UP and CHANNEL DOWN keys for 3-5 seconds to reset the console power.

FIGURE A

5.2 MANAGER MODE - SERIAL NUMBER TAB

A7xe-02-C or A7xe-01-C - If the unit has the old MMM board, the CSafe Model should be set for Off (even if the MMM console is replaced).

A7xe-03-C or A7xe-04 - If the unit has the LMM board or the unit is the new model with 1 lift motor, the CSafe Model should be set for On.

MANAGER MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
About	Serial Number	This option displays the serial number of the platform and console. See Service Mode to edit the serial numbers.	Cannot be modified.
	Accumulated Distance	Total distance on the unit since production.	Cannot be modified.
	Accumulated Time	Total time on the unit since production.	Cannot be modified.
	Software Versions	Software version.	Cannot be modified.
	Out of Order Default: Off	This option allows the club to show the unit "out of order" if an error is present.	On / Off
	CSafe Model Default: On	This option controls whether the console is Fitlinxx compatible.	On / Off

5.3 MANAGER MODE - TIME TAB

MANAGER MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
Time	Maximum Time Default: 60 Minutes	This option allows the club to set the maximum workout duration limits during peak and non peak hours.	Maximum: 99 Minutes Minimum: 5 Minutes
	Default Time Default: 30 Minutes	This option controls the default program time.	Maxi: Max Time Min: 5 Minutes
	Pause Time Default: 5 Minutes	This option controls the default pause time.	Max: 10 Min Min: 1 Minute

5.4 MANAGER MODE - DEFAULTS TAB

MANAGER MODE	FUNCTION & DEFAULTS	DESCRIPTION	MODIFIED
Defaults	Default Level Default: 1	This option controls the default program level.	Max: 1 Min: 20
	Default Age Default: 30	This option controls the default user's age used in the target HR calculations.	Max: 100 Min: 10
	Default Weight Default: 150 lbs / 68 kg	This option controls the default weight used in the calorie calculations. Displayed in pounds or kilograms.	Max: 400 lbs / 182 kg Min: 50 lbs / 22 kg
	Gender Default: Male	Setting the user as Male or Female.	Male or Female
	Key Sound Default: Yes	This option allows different sounds to be chosen for the keypad.	Yes or No

5.5 MANAGER MODE - TV TAB

MANAGER MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
TV	Default Channel Default: 3	This option controls the default TV channel on start up.	Channels 1-999
	Default Volume Default: 5	This option controls the default TV volume on start up.	Maximum: 17 Minimum: 1
	Tuner Available Default: Yes	This option controls the default TV function.	Yes or No
	Setup	This option is used to set the TV tuner function. Press the "-: key to enter this function.	

5.6 MANAGER MODE - LANGUAGE TAB

MANAGER MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
Language	Select default language.	This option allows the user to select a flag for a specific language.	N/A

LANGUAGE	FLAG	UNIT
English		Mile
		Mile
		KM
German		KM
		KM

LANGUAGE	FLAG	UNIT
Spanish		KM
		KM
Dutch		KM
Italian		KM
Japanese		KM

LANGUAGE	FLAG	UNIT
Chinese		KM
		KM
Portuguese		KM
		KM
French		KM

5.7 MANAGER MODE - OTHER TAB

ENGINEERING MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
Other	Asset Management Default: Off	This option allows fitness clubs to collect workout data to a PC.	On or Off
	Virtual Active Default: Off	This option controls the Virtual Active function.	On or Off

CHAPTER 6: ENGINEERING MODE

6.1 ENGINEERING MODE OVERVIEW

The Engineering Mode allows the club owner to keep track of the technical settings and error history for the Ascent Trainer.

1) To enter Engineering Mode, press ENTER, 2, 0, 0, 1, ENTER on the lower keypad. Engineering Mode will appear on the display (Figure A).

2) Follow the prompts to change the desired setting.

3) Press the ENTER key once the desired setting is correct to save.

4) Press HOME to return to normal operation. ***NOTE:*** If a setting has been changed, the unit and console power should be reset. Cycle the power switch, and press and hold the CHANNEL UP and CHANNEL DOWN keys for 3-5 seconds to reset the console power.

FIGURE A

6.2 ENGINEERING MODE - CALIBRATION TAB

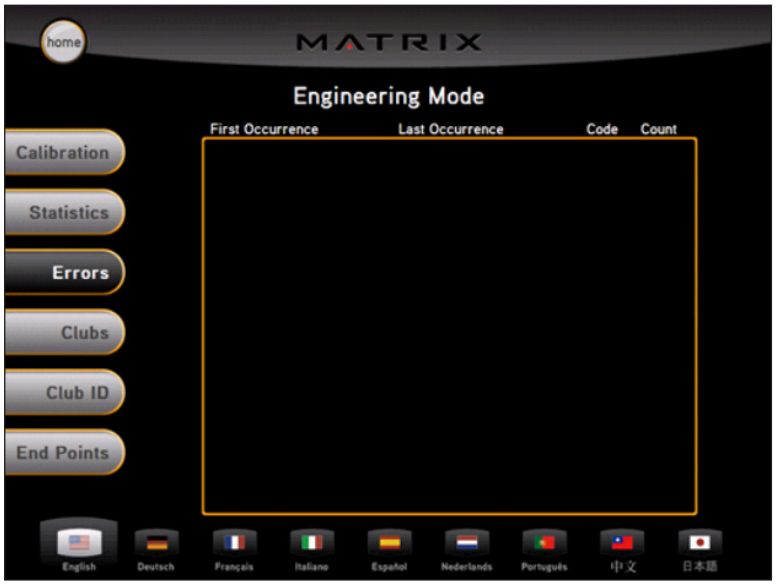
ENGINEERING MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
Calibration	Auto Calibration	This option calibrates the elevation parameters.	
	RPM Low Limit Charge: Default: 10	This option controls the RPM low limit to iPod charge.	Range: 0 - 255
	RPM Low Limit Resistance Default: 10	This option control the RPM low limit to show resistance.	Range: 0 - 255
	Default Incline % Default: 10%	Starting incline level at each program start.	Range: 0% - 100%

6.3 ENGINEERING MODE - STATISTICS TAB

home
MATRIX
Engineering Mode
Calibration
Statistics
Errors
Clubs
Club ID
End Points
Averages
Program Count Time Distance Speed Pace
Manual 636 - 52% 00:20 0.39 mi 70.07 mph 00:51
Rolling Hills 62 - 5% 03:26 0.13 mi 2.31 mph 25:58
Intervals 26 - 2% 00:49 0.03 mi 1.87 mph 32:03
Glute Training 0 - 0% 00:00 0.00 mi 0.00 mph 00:00
Fat Burn 63 - 5% 00:19 0.02 mi 3.34 mph 17:57
Constant Watts 49 - 4% 00:10 0.01 mi 4.93 mph 12:09
Fitness Test 78 - 6% 01:04 0.80 mi 45.11 mph 01:19
Target Heart Rate 104 - 8% 00:12 0.02 mi 6.37 mph 09:25
Virtual Active 206 - 17% 01:00 0.06 mi 3.61 mph 16:38
Accumulated Time 16 hrs
Accumulated Distance 31 mi
English
Deutsch
Français
Italiano
Español
Nederlands
Português
中文
日本語

ENGINEERING MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
Statistics		This option displays the workout history.	N/A

6.4 ENGINEERING MODE - ERRORS TAB



ENGINEERING MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
Errors		This option displays the error code history.	N/A

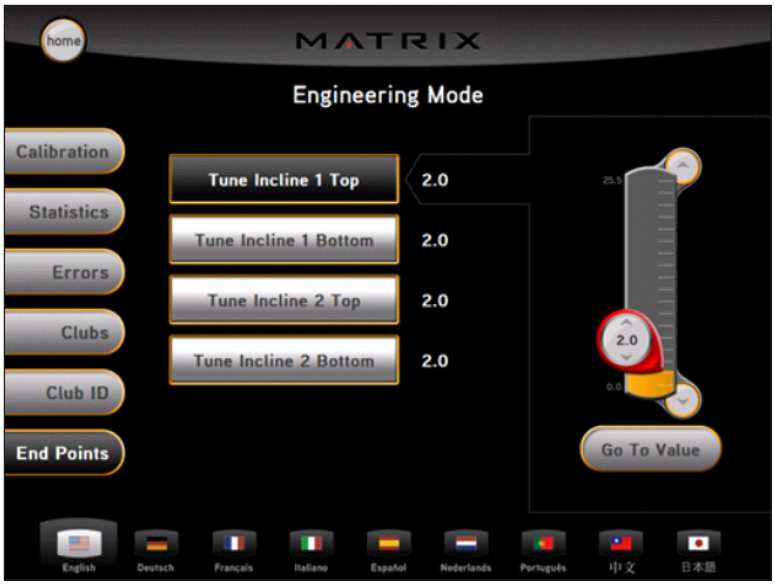
6.5 ENGINEERING MODE - CLUBS TAB

ENGINEERING MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
	Clubs Default: MATRIX	This option allows the club to select a screen header from a list.	N/A

6.6 ENGINEERING MODE - CLUB ID TAB

ENGINEERING MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
	Club ID	This option records the Club ID of the fitness facility.	N/A

6.7 ENGINEERING MODE - END POINTS TAB



ENGINEERING MODE	FUNCTION & DEFAULTS	DESCRIPTIONS	MODIFIED
End Points	Tune Incline 1 Top: Top: 2.0	Sets the maximum end incline for incline motor 1.	Top: 0.1 - 25.5
	Tune Incline 1 Bottom: Bottom: 2.0	Sets the minimum end incline for incline motor 1.	Bottom: 0.1 - 25.5
	Tune Incline 2 Top: Top: 2.0	Sets the maximum end incline for incline motor 2.	Top: 0.1 - 25.5
	Tune Incline 2 Bottom: Bottom: 2.0	Sets the minimum end incline for incline motor 2.	Bottom: 0.1 - 25.5

CHAPTER 7: SERVICE MODE

7.1 SERVICE MODE OVERVIEW

The Service Mode allows an authorized service provider to test and store information on the Ascent Trainer.

1) To enter Service Mode, press ENTER, 3, 0, 0, 1, ENTER on the lower keypad. Service Mode will appear on the display (Figure A).

2) Follow the prompts to change the desired setting.

3) Press the ENTER key once the desired setting is correct to save.

4) Press HOME to return to normal operation. ***NOTE:*** If a setting has been changed, the unit and console power should be reset. Cycle the power switch, and press and hold the CHANNEL UP and CHANNEL DOWN keys for 3-5 seconds to reset the console power.

FIGURE A

7.2 SERVICE MODE - SETUP TAB

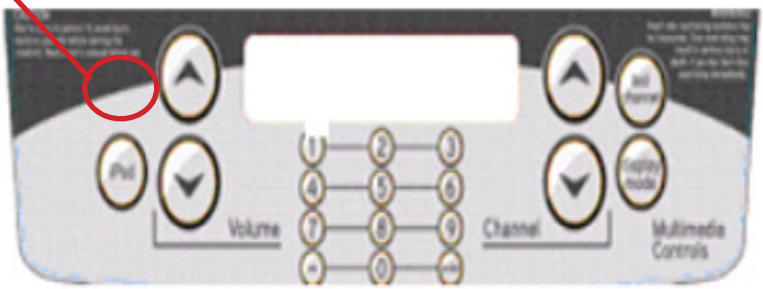
A7xe-02 - This setting is for non-self powered frames (A5x-02-F).
A7xe-03 - This setting is for self powered frames (A5x-03-F).
A7xe-04 - This setting is for the new style Ascent Trainer (A5x-04-F). This setting should be used for the current model.

SERVICE MODE	FUNCTION & DEFAULTS	DESCRIPTIONS
Setup	Machine Type: Default: Ascent Trainer	This option selects the current model.
	Serial Number	This option displays the serial number of the console and frame.
	Accumulated Distance	This option displays the accumulated workout distance since production.
	Accumulated Time	This option displays the accumulated workout time since production.
	Show Service on Boot	Factory Setting Only.

7.3 SERVICE MODE - TEST TAB

A7xe-02 Keypad - Old keypad - Includes Quick Start Key

A7xe-03 Keypad - New keypad - Does NOT Include Quick Start Key



SERVICE MODE	FUNCTION & DEFAULTS	DESCRIPTIONS
Test	Keypad	This option is for a keypad test.
	Touch Calibration	This option starts a touch calibration. Follow the cross mark moving across the screen and touch. After testing 5 positions, touch the center to exit the test.
	Keypad Type Default: No Quick Start	This option sets the keypad type for the console.
	Radio Test	This option will test the radio signal.

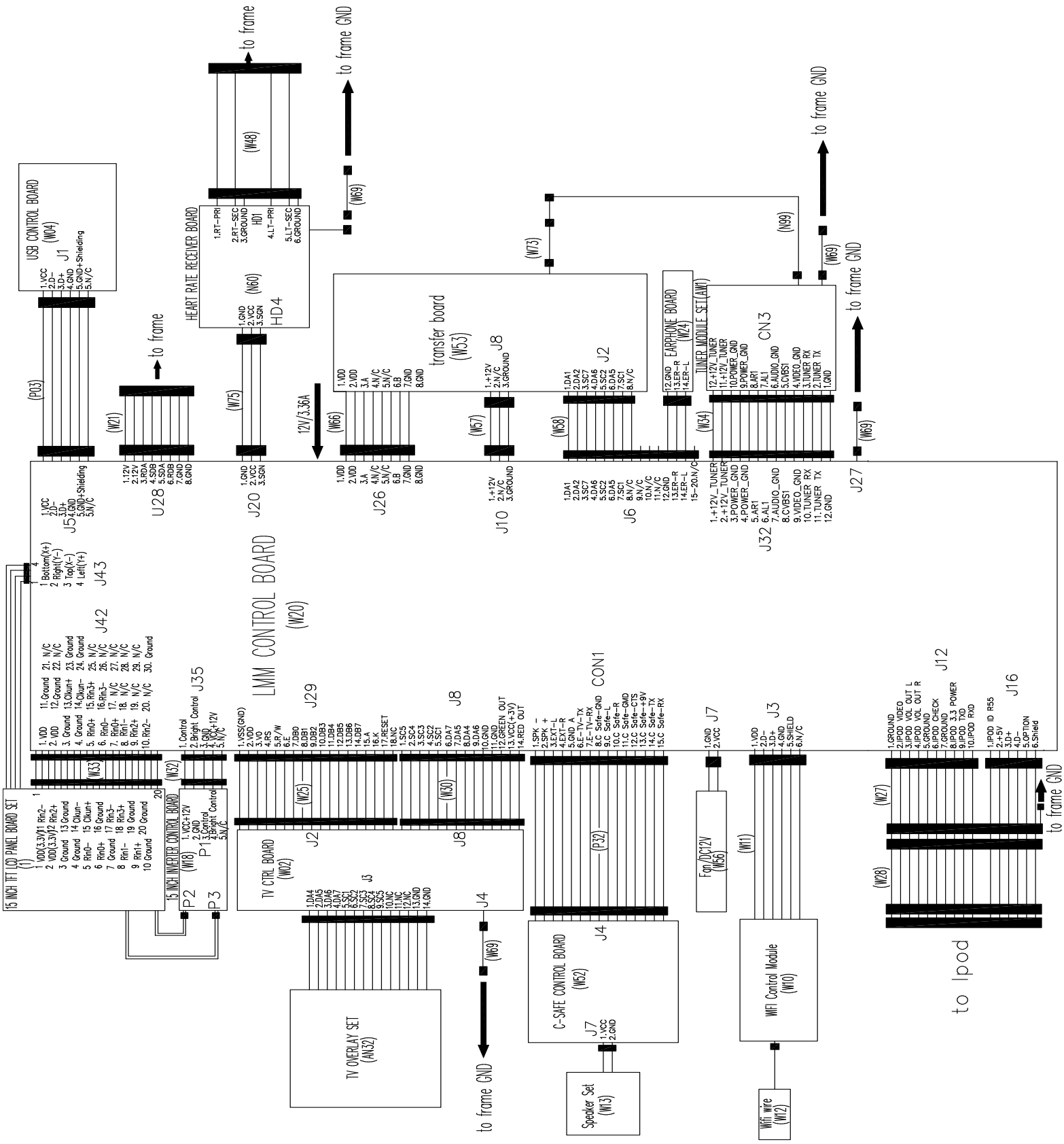
7.4 SERVICE MODE - LOG TAB

SERVICE MODE	FUNCTION & DEFAULTS	DESCRIPTIONS
	Log	This option allows the club to record key components replacement history.

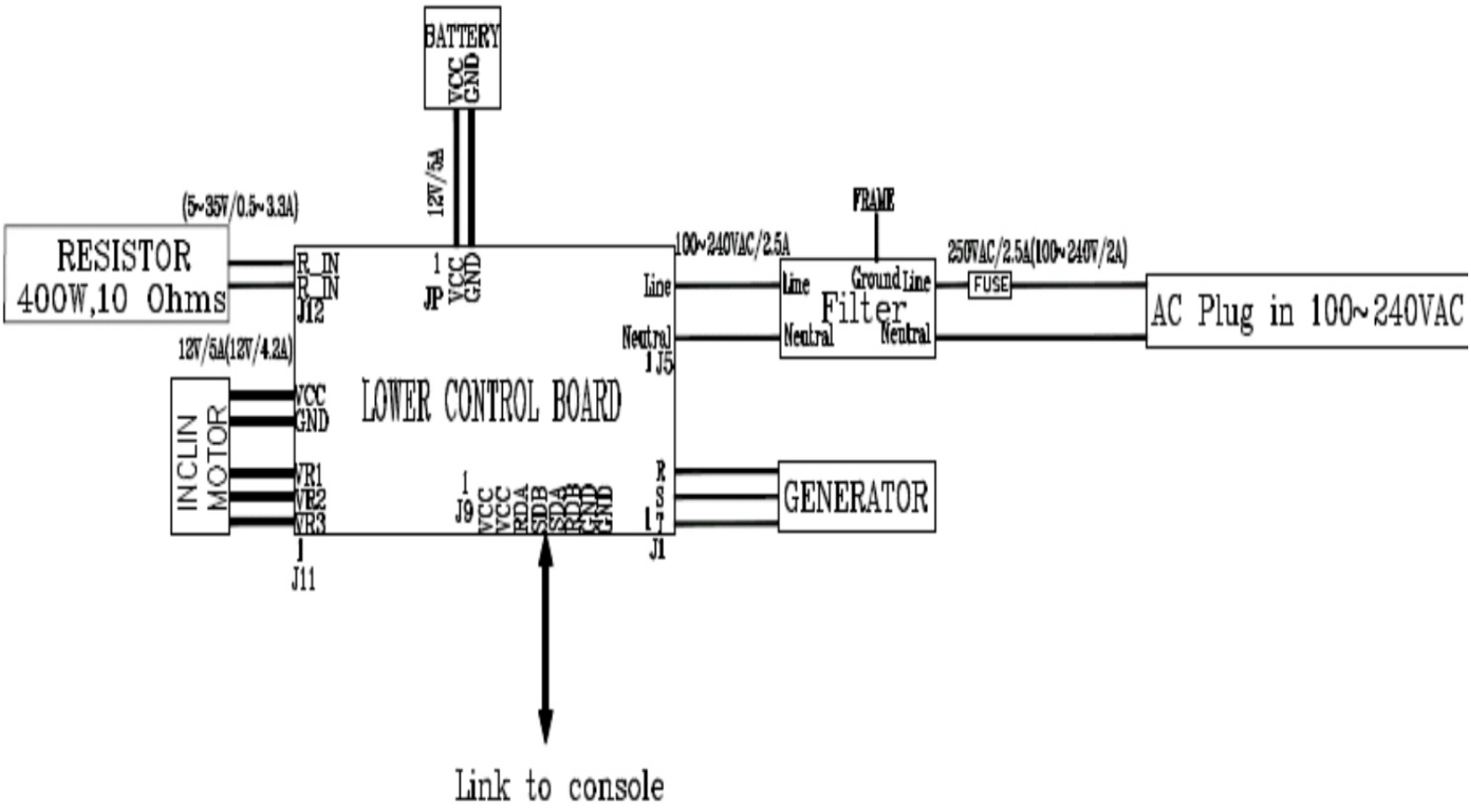
7.5 SERVICE MODE - DATE & TIME TAB

SERVICE MODE	FUNCTION & DEFAULTS	DESCRIPTIONS
	Date & Time	This option sets the current date and time of the machine.

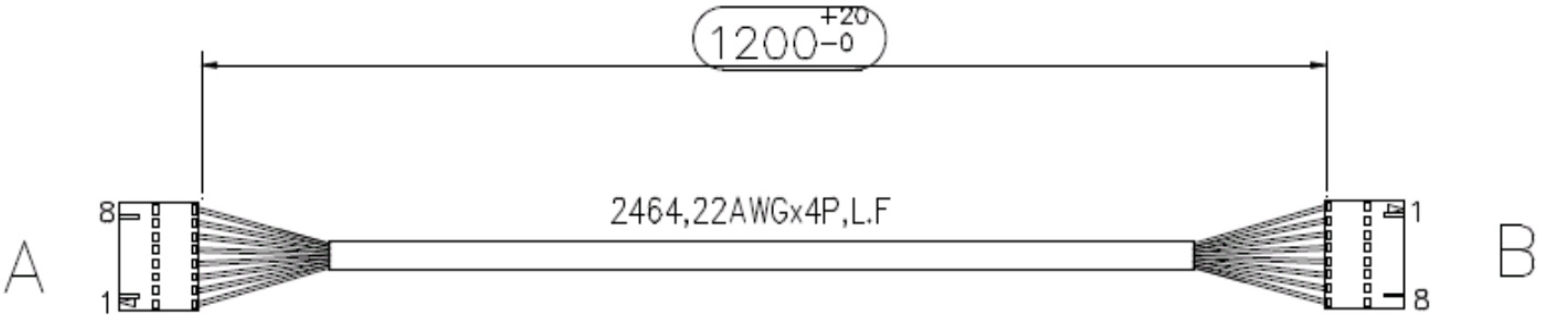
8.1 ELECTRICAL DIAGRAMS



8.1 ELECTRICAL DIAGRAMS - CONTINUED



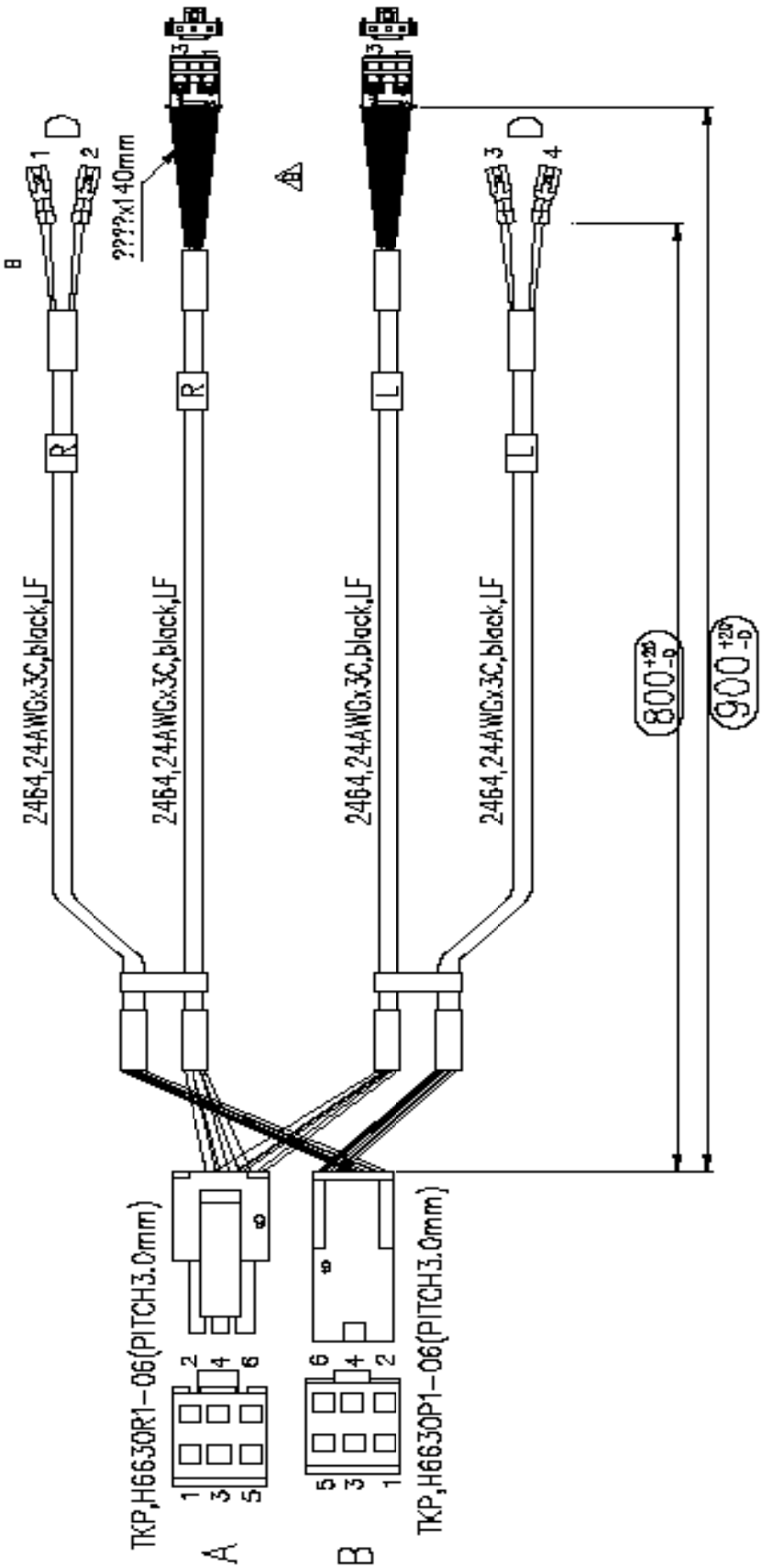
P21 - DIGITAL COMMUNICATION WIRE



A.HOLE	B.HOLE	FUNCTION	COLOR
1	1	12V	red
2	2	12V	
3	3	RDA	
4	4	NA	
5	5	NA	
6	6	RDB	
7	7	GND	black
8	8	GND	

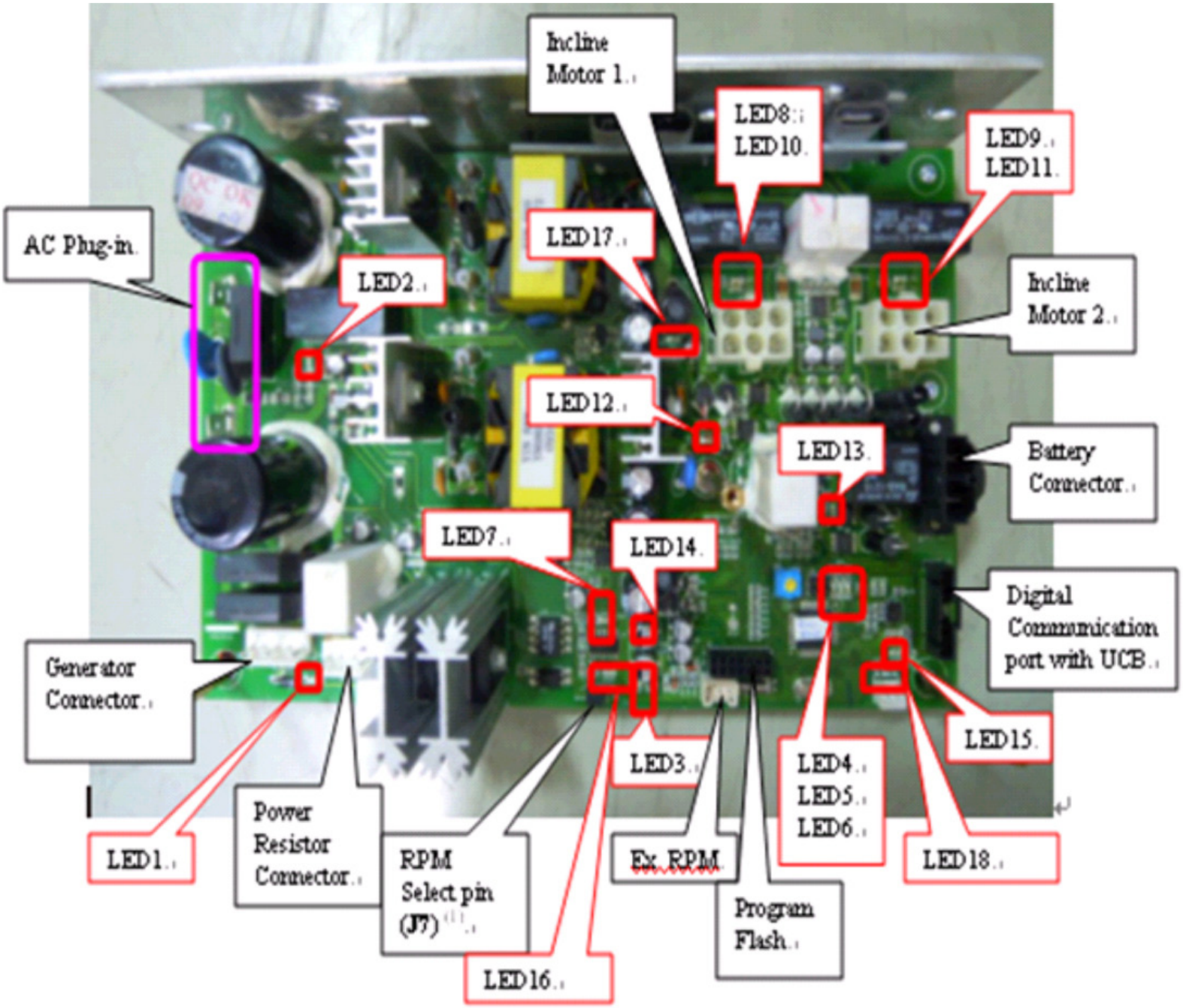
8.1 ELECTRICAL DIAGRAMS - CONTINUED

P25 - Hand Pulse Connecting Cable



A.HOLE	B.HOLE	D.HOLE	E.HOLE	F.HOLE	COLOR	FUNCTION
2				3		DA2(R-down)
6			3	1		DA2(L-down)
4	1	1				SC2
	2	2			Red	Right Hand Pulser
	3				White	Right Hand Pulser-
						Shild
3			2			DA1(L-UP)
				2		DA1(R-UP)
1						
5			1			SC1
	4	3			Red	Left Hand Pulser
	5	4			White	Left Hand Pulser-
	6					Shild

8.2 LCB ERROR INDICATORS



LED	DESCRIPTION
LED 1	Generator RPM
LED 2	AC Plug In
LED 3	Vcc (5V)
LED 4	System Status
LED 5	Error Status
LED 6	Error Status
LED 7	Resistance
LED 8	Incline 1 Forward
LED 9	Incline 2 Forward

LED	DESCRIPTION
LED 10	Incline 1 Rearward
LED 11	Incline 2 Rearward
LED 12	Charge
LED 13	Discharge
LED 14	12V / 6A (main power)
LED 15	Console Power
LED 16	E_RPM (external)
LED 17	15V / 8A (charge power)
LED 18	Cool Fan

LED	PULSES / SECOND	DESCRIPTION
LED 4	2 times	Set for Self Powered System
	1 time	Set for AC Plug In System
LED 5	2 times	Class B Error
	1 time	Burn In
	0.5 times	Class A Error
LED 6	2 times	Class C Error
	0.5 times	Burn In
	Bright	NO Resistance Offset.
LED 16	Bright	No Use
	Pulse	Use

8.3 CONSOLE ERROR CODES

CODE	DESCRIPTION	SOLUTION
0x0140	When the UCB implements an incline command, the incline has no action for 5 seconds.	Replace the Incline Motor or LCB.
0x0142	The incline position has a difference of over 30% and is not reduced within 3 seconds.	Look for misalignment of the Incline Motor, replace if needed.
0x0145	Self powered units only - incline stops when the LCB battery capacity is too low or the RPMs are not high enough (<70 RPM).	Replace the LCB.
0x0441	When the UCB implements a command, the LCB is not receiving.	Check the console cable connections, update the LCB software, or replace the LCB or UCB as needed.
0x01A0	Left incline motor disconnected for 3 seconds.	Check the connection of the incline motor cables at the LCB. Replace the incline motor or LCB as needed.
0x01A1	Incline calibration is over 80 seconds or does not complete.	Replace the LCB or Incline Motor
0x01A7	The incline is short circuited or over current.	Look for misalignment of the Incline Motor, replace if needed.
0x01AC	Generator or resistor has an open circuit, short circuit, or the current is over 3.7 Amps for 1 second.	Check the connection of the Generator and resistor, replace the generator or resistor as needed.
0X01AF	The power resistor is disconnected.	Check the connection of the resistor at the LCB. Replace the LCB if needed.
0x01B2	The incline motor has no action or current.	Check the fuse of the LCB, if blown, replace the LCB. If the fuse is ok, run auto calibration.
0x01AE	Battery over charge current or battery short circuit.	Replace the LCB.
0x0201	LCB battery low voltage (battery voltage < 11.2V).	Plug in the machine for AC charge. Temporarily stop using incline.
0x0247	LCB fail (flash data error).	Replace the LCB.
0x0248	Battery disconnection or fail (the battery voltage is less than 8V)..	Check that the battery is connected. If it is, replace the battery.
0x02AB	Machine type error.	Set the Machine Type and LCB.
0x02B4	Resistance type error.	Set the Machine Type and LCB.
0x03A5	Failed to load program.	Usually means the software file is corrupt. Try upgrading the software or replace the console if needed.
0x03A6	Failed to run program.	Usually means the software file is corrupt. Try upgrading the software or replace the console if needed.
0x03A7	Failed to load VA package files.	Check to see if the SD card is mounted correctly and that there are no corrupt video files present. Replace the VA board if needed.
0x03A8	Machine type setting is not matching the LCB.	Set the correct Machine Type for the console and LCB in Manager Mode.
0x04A0	If the LCB does not return a message to the UCB within 3 seconds.	Check the console cable connections, replace the LCB or UCB as needed.
0x04B0	UCB no communication response.	Check the connections of the console cable at the console and LCB. Replace cc, console, or LCB as needed.

8.4 ERROR CODE TROUBLESHOOTING - 0140 / 01B2

ERROR CODE 0140 or 01B2

1) SYMPTOM:

a. 0140 - Incline motor operation has failed.
b. 01B2 - The incline motor has no action or current.

2) SOLUTION:

a. Run Auto Calibration (see Section 4.8), then check the LCB LEDs. If the incline LED is not a solid light (only one LED will show a solid light at a time), replace the LCB (Figure A).
b. If the LCB incline LEDs are solid, use a multi meter to check the fuses. They should have an ohm reading of 0 (Figures B & C).
c. If the LCB incline LEDs are solid, and the fuses check out ok, run auto calibration.
- If calibration fails, replace the incline motor.

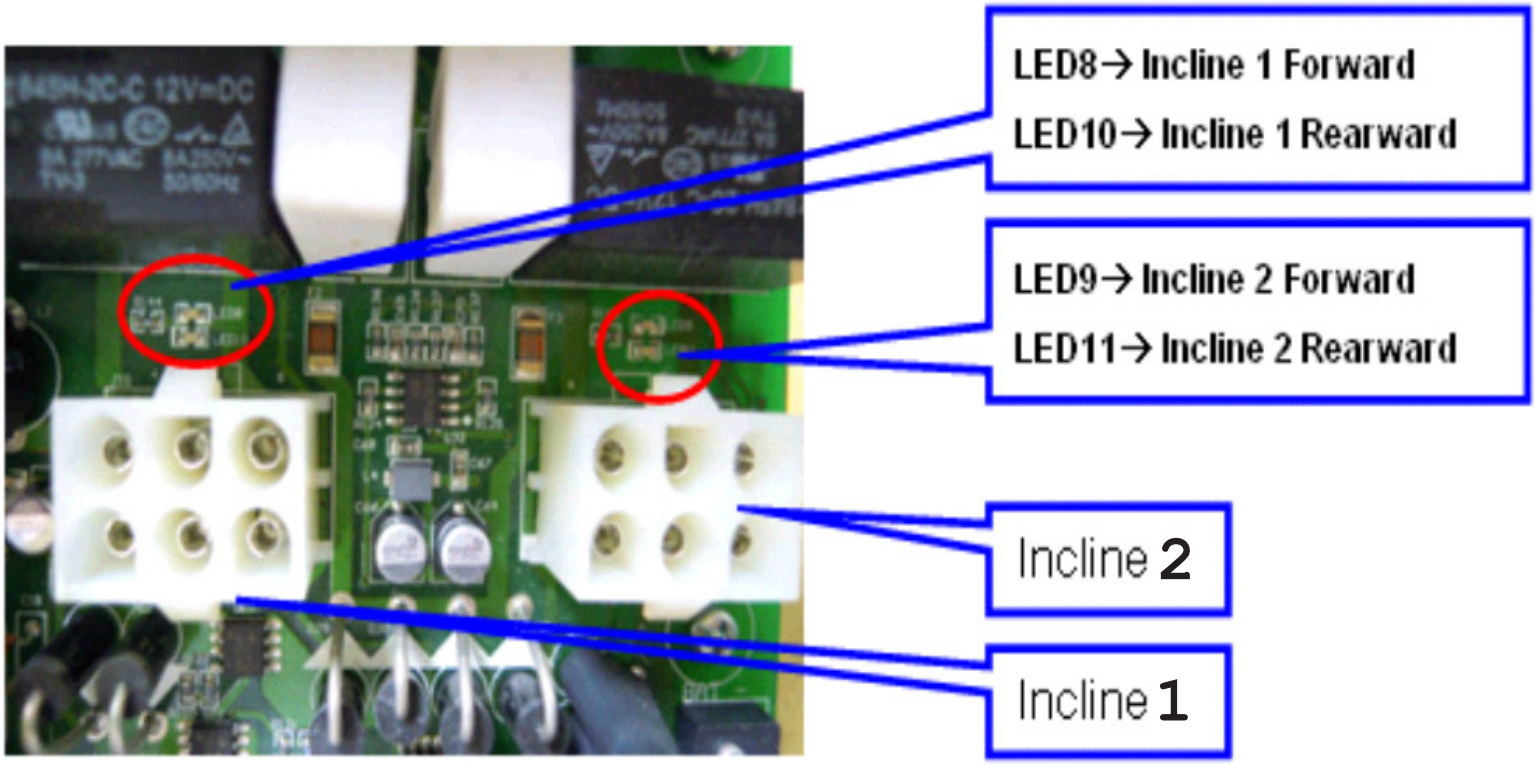


FIGURE A

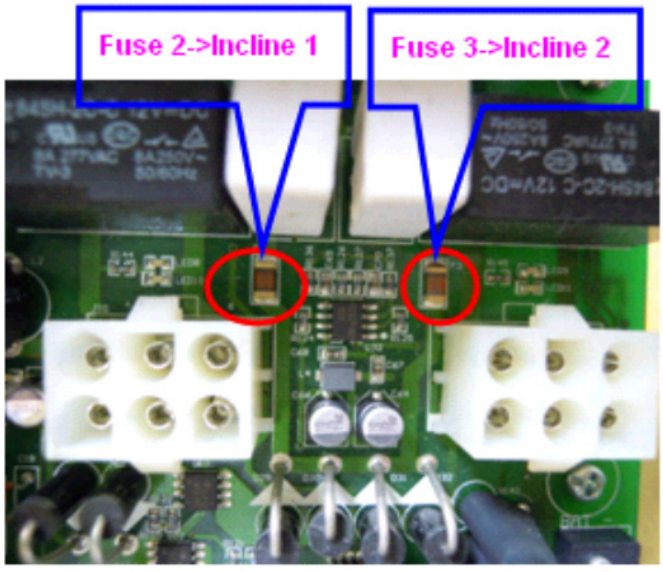


FIGURE B

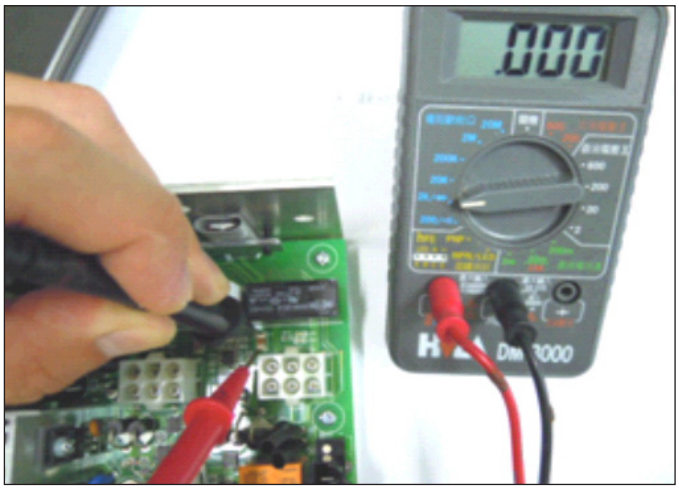


FIGURE C

ERROR CODE 01A0

1) SYMPTOM:

a. 01A0 - Incline motor disconnected.

2) SOLUTION:

a. Check the Machine Type in Service Mode.
b. Check the connection of the incline motor at the LCB.
c. Run auto calibration (see Section 4.8).
d. If auto calibration fails, re-enter Engineering Mode and again go to Calibration.
- Measure the incline VR value (Figure A) by measuring across the Blue / Orange and Brown / Orange wiring in the incline motor wire harness. The VR range should be 0.5k - 9.5k ohms (for example if the circuit is open or shorted). If the VR is outside of this range, replace the incline motor.
e. If the incline motor does not resolve the issue, replace the LCB. ***NOTE***: Run auto calibration if the incline motor or LCB is replaced.

FIGURE A

NO POWER TO THE CONSOLE

1) SYMPTOM:

a. The unit is not getting power from the outlet.
b. The LCB is not getting power from the power receptacle.
c & d. The LCB LEDs are lit, but there is no power to the console.

2) SOLUTION:

a. Remove the front disk and check to see if LED15 is lit on the LCB. If it is not, verify power at the outlet. If the outlet is not outputting 120V, check the fitness room power.
- If LED 15 is still not lit after verifying the fitness room power, replace the power cord.

b. Check to see if LED 15 is lit on the LCB (Figure A).
- If LED 15 is not lit, check for incoming AC voltage at the LCB. Replace the power components as needed if the voltage is not present.
- Replace the LCB if all power components are ok and there is AC voltage to the LCB.

c. Check to see if LED D18 is lit on the upper control board (Figure B).
- If LED D18 is lit, check the switch on the IO board, it should be towards the right side (LCB_Power - Figure B).
- If LED D18 is not lit, check the console cable for connection at the LCB and console.

d. If LED D18 is not lit after checking the console cable connections, replace the console cable.
- If LED D18 is lit on the console, but there is still no power, replace the console.

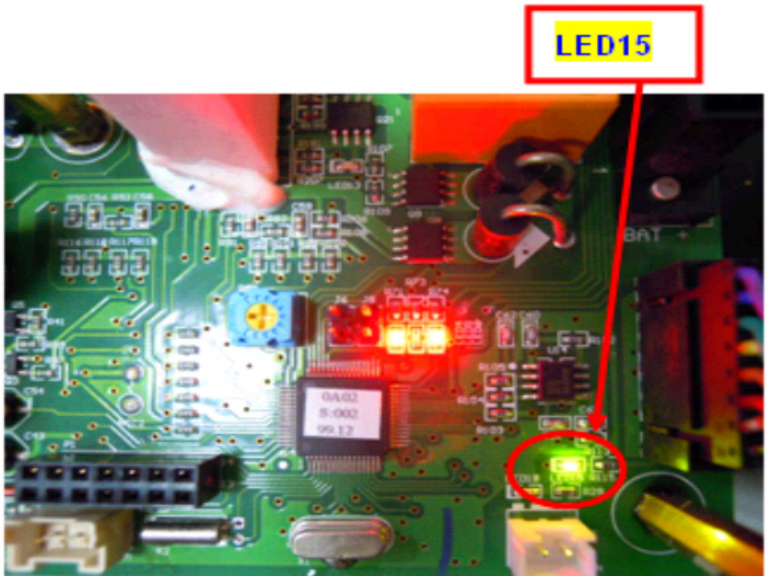


FIGURE A

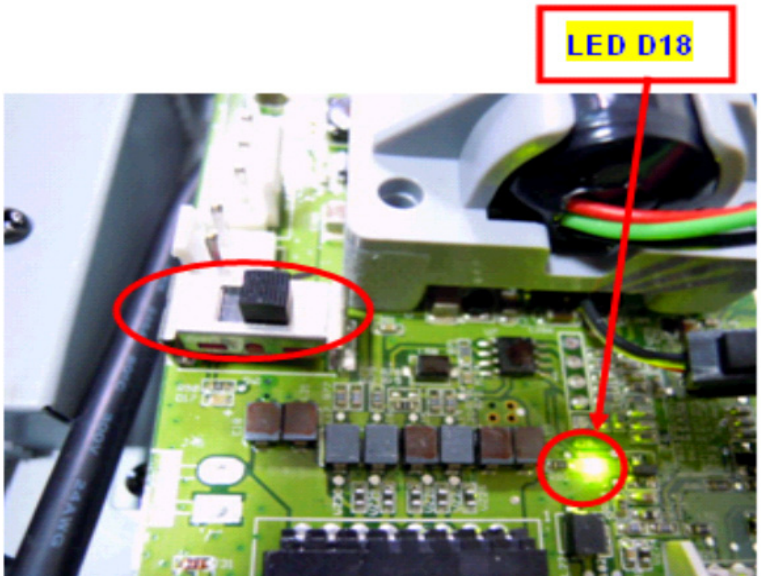


FIGURE B

HEART RATE ISSUES

1) SYMPTOM:

a. The display is stuck on heart rate.
b. Erratic heart rate.
c. No heart rate.

2) SOLUTION:

a. If the display is stuck on heart rate, it is normally due to lighting in the workout area.
- Change the lighting in the immediate area of the Ascent Trainer.
- Try moving the Ascent Trainer to a different area in the facility.
- Make sure that nobody is using a telemetric heart rate strap / watch in the area.

b. Something is interfering with the heart rate signal.
- Verify the proper use of the heart rate grips / chest strap. For example if using a chest strap, make sure it is high enough on the user's chest.
- Verify that nothing is touching the heart rate grips. For example, the safety key string or headphone wiring).
- There are some things that will interfere with heart rate signal. These include florescent lighting, electric dog fences, large electrical motors, cell phone towers, and airports.

c. The console is not receiving a heart rate signal.
- Verify the proper use of the heart rate grips / chest strap. For example, if using a chest strap, make sure it is high enough on the user's chest.
- Check the connection of the heart rate grip wiring at the heart rate board.
- Remove the screws holding the 2 halves of the heart rate grip together and check the connection of the heart rate grip wiring to the grips (Figure A).
- If all wiring connections are good, replace the heart rate grips and / or the heart rate board.
- If the heart rate grips and / or the heart rate board do not resolve the issue, replace the console.

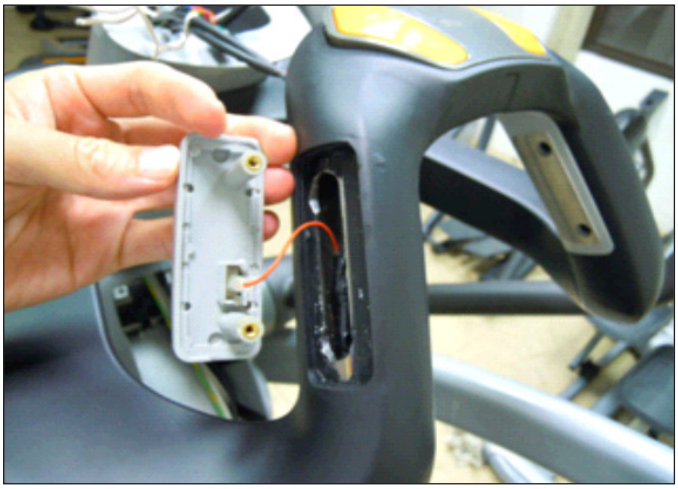


FIGURE A

DISPLAY COLOR ISSUES

1) SYMPTOM:

a. The display colors are off or there are a rainbow of colors on the screen.

2) SOLUTION:

a. Check the console cable connections at the LCB and console.

b. check the LED display wire connection (Figure A).

- This wire connection should be taped in place. Add tape if needed.
- This wire should be tie strapped to the frame (Figure B). Add a tie strap if needed.

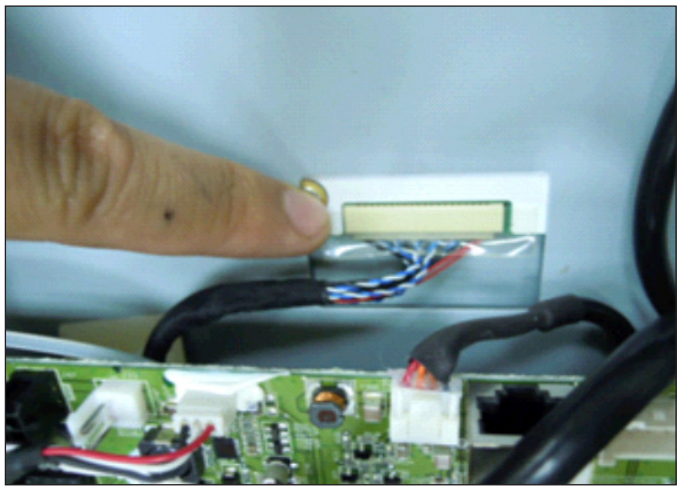


FIGURE A

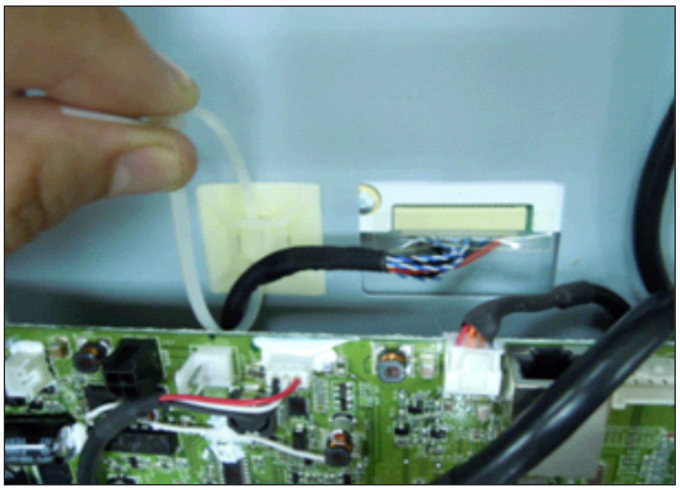


FIGURE B

8.9 TV TROUBLESHOOTING - OVERVIEW

Sections 8.9 - 8.12 will assist with diagnosing problems with TV and entertainment related equipment sold by Matrix FItness Equipment.

The Matrix A7xe-04 Ascent Trainer includes an integrated TV that shows in the large display window. The TV is capable of being shown as a 7" or 15" screen (Figures A & B). The console should be equipped with an entertainment keypad similar to Figure C.

FIGURE A

FIGURE B

FIGURE C

8.10 TV TROUBLESHOOTING - PICTURE FUZZY OR UNCLEAR

1) For a fuzzy or unclear picture, see the TV programming instructions in Section 10. If the TV is still fuzzy or unclear after programming:
   a) Check the coax connection at the entertainment port (Figure A).
   b) Remove the 5 screws holding the console to the console mast and check the coax connection at the console (Figure B).

FIGURE A

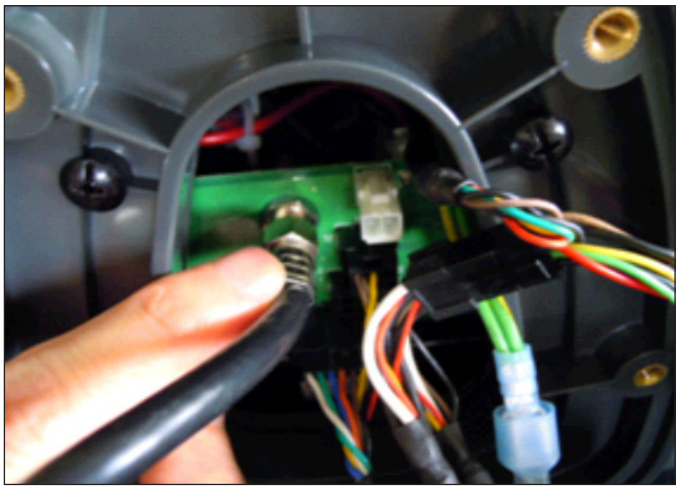


FIGURE B

c) Use a verified good piece of coax cable (a good coax cable will have a signal strength of 10hz or greater) to plug directly into the back of the console bypassing the entertainment port. If this resolves the issue, replace the internal coax cable.

d) If plugging the coax cable into the back of the console does not resolve the issue, remove the console back and check the console cable connection at the tuner (Figure C).

e) Check the internal cables and fitting inside your machine at the console and below the front shroud (Figure D). Make sure you have no kinks, cuts, or poor connectors at the end of the cable. Fittings should have a clean flush connector with no stray aluminum strands touching the center conductor. Replace any suspect cables.

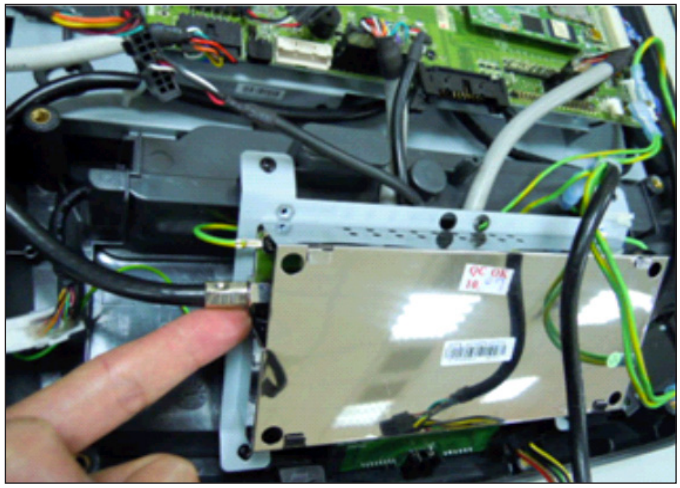


FIGURE C

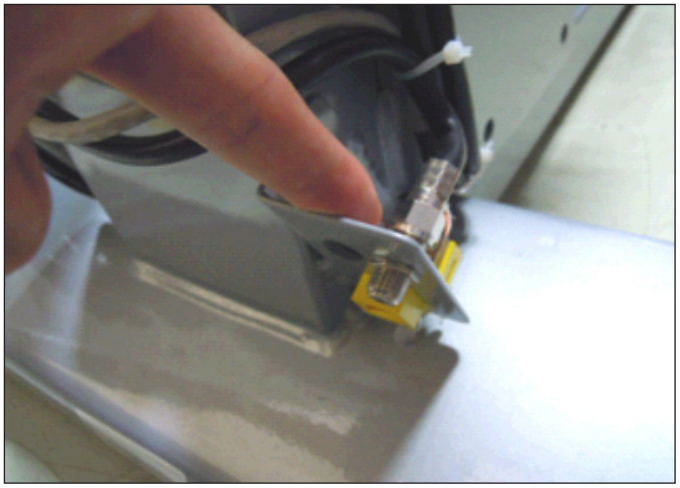


FIGURE D

f) If no damage can be found on the cables, fittings, or connectors, and hooking the coax directly to the back of the console does not resolve the issue, replace the TV tuner.

8.11 TV TROUBLESHOOTING - TV WILL NOT TURN ON

1) Remove the console back and check the electrical connections for the TV (Figures A & B).

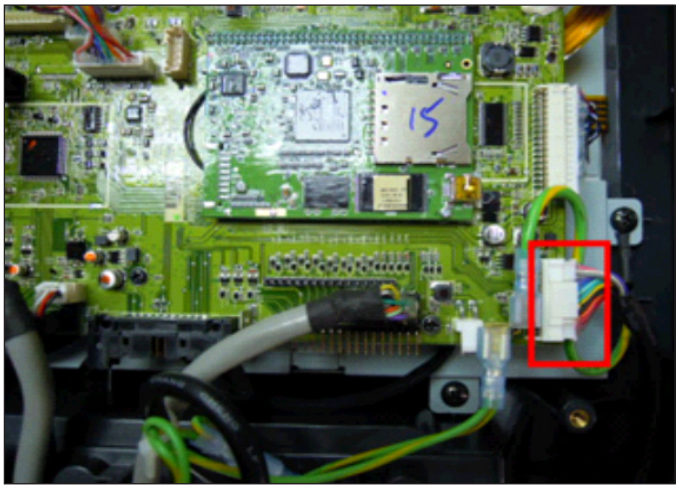


FIGURE A

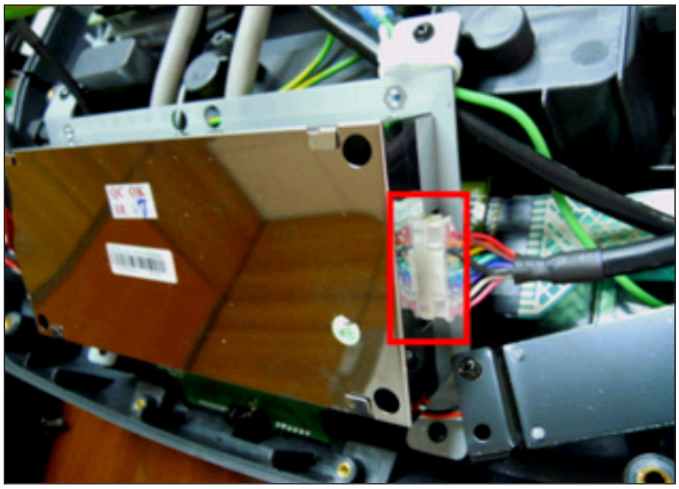


FIGURE B

2) After you have verified that all connects are secure, and the problem still persists, verify power at the outlet (Figure C). If the outlet is not outputting 120V, check the fitness room power.
3) If internal electrical connections are good, and the outlet is outputting 120V, the issue is likely with the TV. Replace the console.

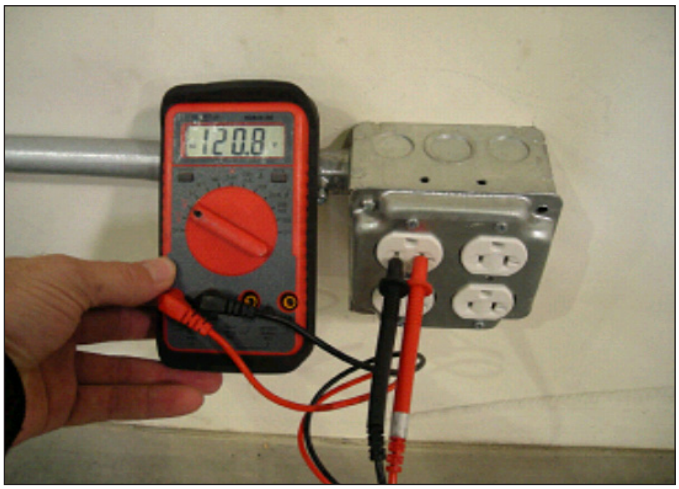


FIGURE C

8.12 TV TROUBLESHOOTING - ENTERTAINMENT KEYPAD ISSUES

ENTERTAINMENT KEYPAD IS NOT WORKING

1) SYMPTOM:

a. The entertainment keypad (Figure A) is not responding.

2) SOLUTION:

a. Remove the console and check the connection of the entertainment keypad (Figure B).
b. If the entertainment keypad cable is pinched, kinked, or cut replace the keypad.
c. If replacing the keypad does not resolve the issue, replace the console.

FIGURE A

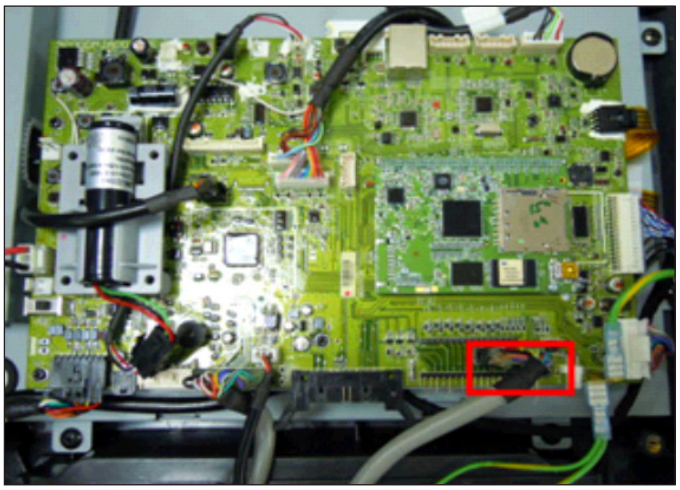


FIGURE B

9.1 FRONT DISK REPLACEMENT

1) Remove the center cover by turning it counter clockwise (Figures A & B).

FIGURE A

FIGURE B

2) Remove the 3 screws holding the disk to the axle (Figure C).
3) Remove the disk (Figure D).

FIGURE C

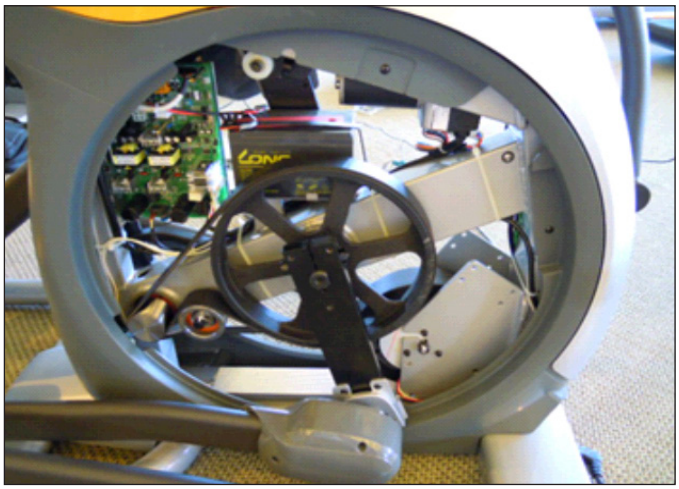


FIGURE D

4) Reverse Steps 1-3 to install a new disk. ***NOTE:*** The 3 screws removed in Step 2 should be torqued to 25 N-m.

9.2 FRONT SHROUD REPLACEMENT

1) Remove the link arm and pedal arm plastic caps (Figures A & B).

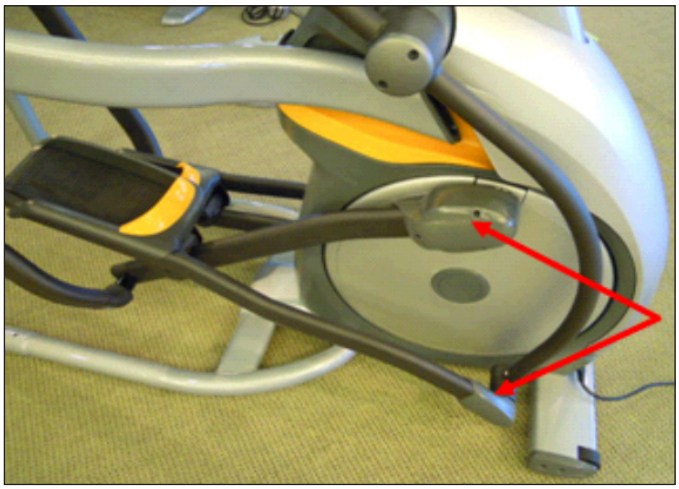


FIGURE A

FIGURE B

2) Detach the dual action handlebar from the link arm (Figure C).
3) Secure the handlebar so that it is out of the way (Figure D).

FIGURE C

FIGURE D

4) Remove the front disks as outlined in Section 9.1.
5) Detach the pedal arm from the crank bearing assembly (Figure E).
6) Remove the 2 screws that hold the front top cover to the frame and remove the top cover (Figure F).

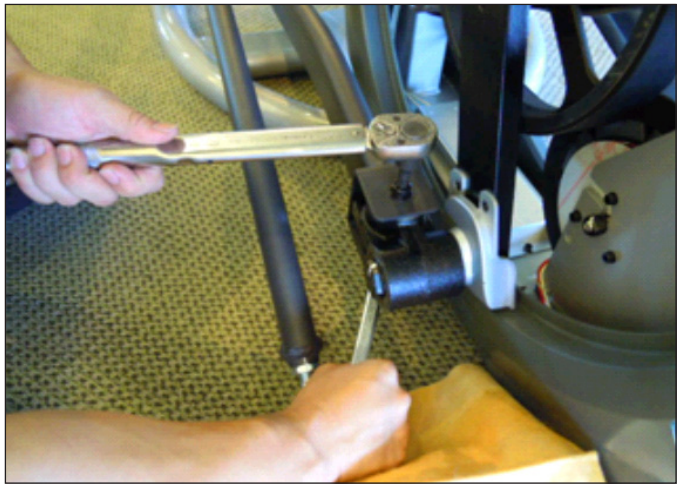


FIGURE E

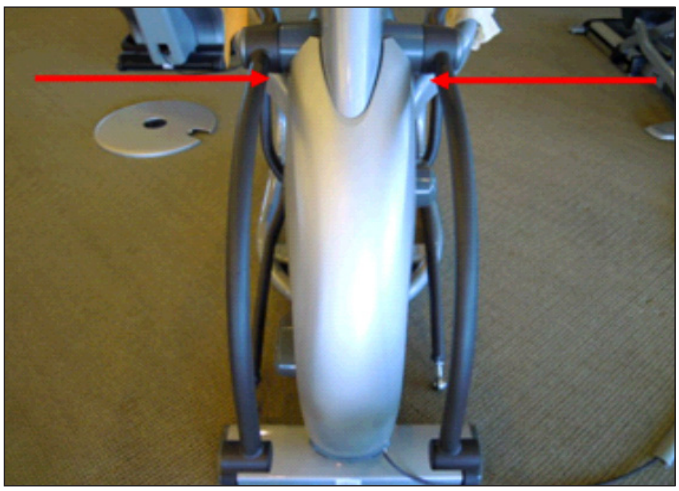


FIGURE F

9.2 FRONT SHROUD REPLACEMENT - CONTINUED

7) Pull out the rubber tray from the cup holder plastic (figure G).
8) Remove the 2 screws to disassemble the cup holder plastic and remove it from the unit (Figure H).

FIGURE G

FIGURE H

9) Remove the 2 screws to disassemble and remove the middle stabilizer sweat cover (Figures I & J).

FIGURE I

FIGURE J

10) Remove the 1 screw (exposed when the cup holder is removed) holding the orange slot cover to the frame and remove it (Figure K).
11) Remove all of the cables from the front shrouds (Figure L).

FIGURE K

FIGURE L

9.2 FRONT SHROUD REPLACEMENT - CONTINUED

12) Remove the 9 screws to detach the front shrouds from the frame (or each other) (Figure M).
13) Turn the crank to the slotted portion of the shroud (Figure N).

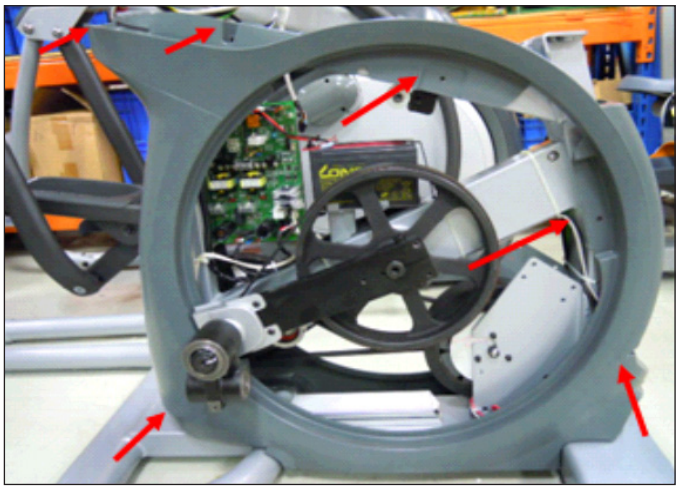


FIGURE M

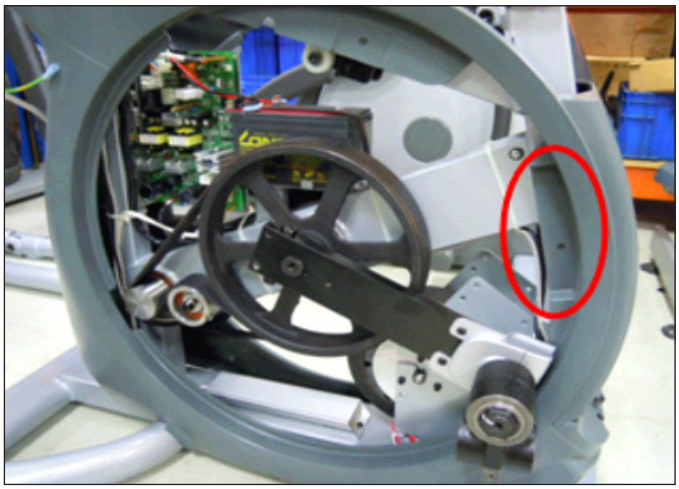


FIGURE N

14) Remove the front shrouds for frame access (Figures O & P).

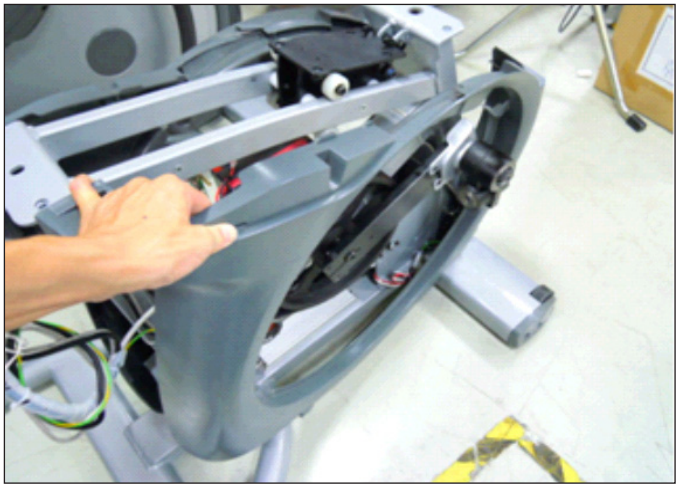


FIGURE O

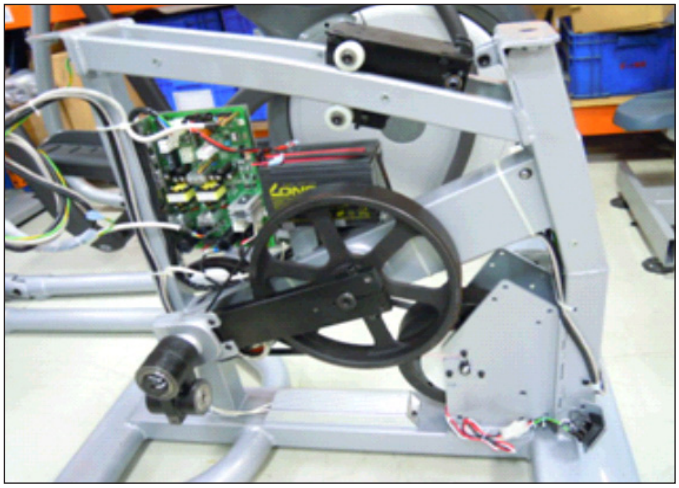


FIGURE P

15) Reverse Steps 1-14 to install new shrouds. ***NOTE:*** The bolt / nut removed in Step 5 should be torqued to 70 N-m.

9.3 LOWER CONTROL BOARD REPLACEMENT

1) Turn off the power and disconnect the cord from the machine.
2) Remove both front disks from the machine as outlined in Section 9.1.
3) Disconnect all wires from the LCB (Figure A).

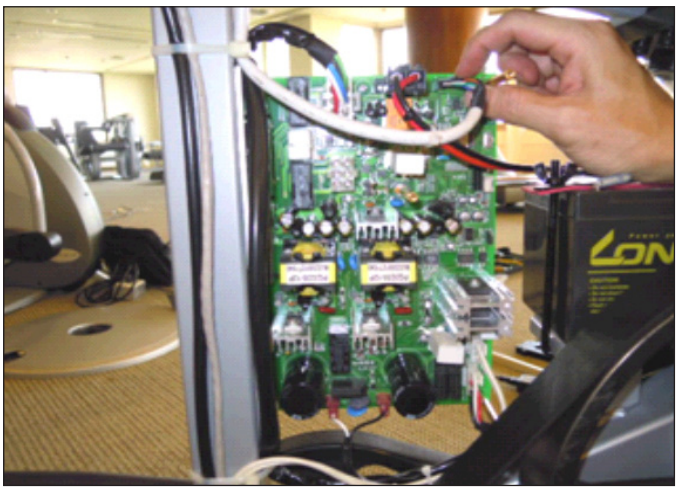


FIGURE A

4) Remove the 2 screws holding the LCB to the frame (Figure B).

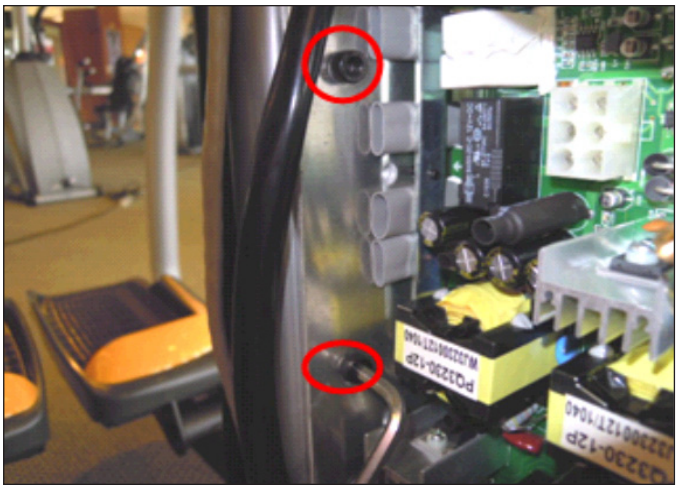


FIGURE B

6) Reverse Steps 1-4 to install a new LCB.
7) Test the Ascent Trainer for function as outlined in Section 9.22.

9.4 GENERATOR REPLACEMENT

1) Turn off power and disconnect the cord from the machine.
2) Remove the front disks as outlined in Section 9.1.
3) Remove the front shrouds as outlined in Section 9.2.
4) Cut the cable tie holding the cable to the frame (Figure A).
5) Unplug the power cable connector of the generator (Figure B).

FIGURE A

FIGURE B

6) Loosen the nut holding the generator to the frame (Figure C).
7) Remove the three screws from the generator bracket (Figure D).

FIGURE C

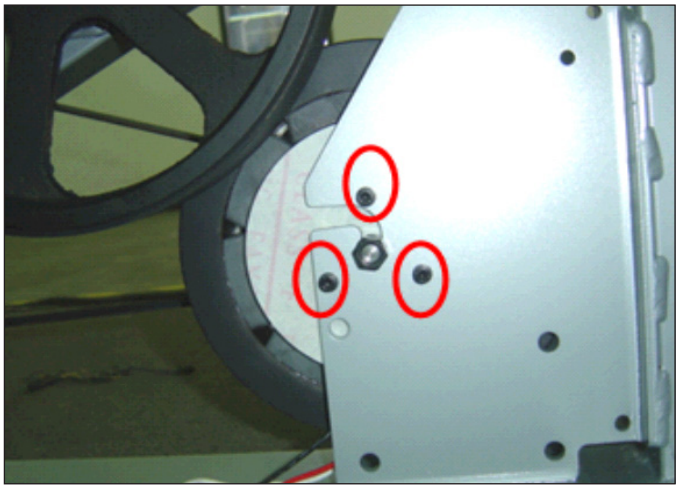


FIGURE D

9.4 GENERATOR REPLACEMENT – CONTINUED

8) Remove the nut from the other side of the generator bracket (Figure E).
9) Loosen and remove the generator belt (Figure F).

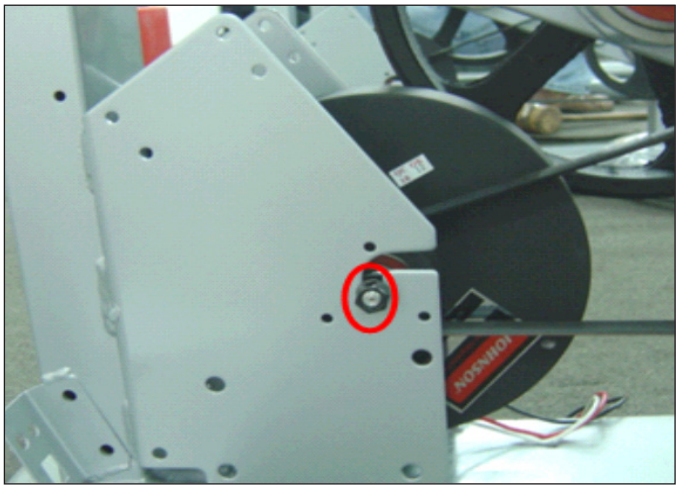


FIGURE E

FIGURE F

10) Remove the generator from the frame.
11) Reverse Steps 1-10 to install a new generator. Re-install the belts as outlined in Section 9.5. ***NOTE:*** The 3 screws removed in Step 7 should be torqued to 8 N-m and the nut from Step 8 to 40 N-m.
12) Test the Ascent Trainer for function as outlined in Section 9.22.

9.5 GENERATOR BELT REPLACEMENT

1) Turn off the power and disconnect the cord from the machine.
2) Remove the front disks from the machine as outlined in Section 9.1.
3) Remove the front shrouds as outlined in Section 9.2.
4) Remove the generator as outlined in Section 9.4.
5) To install a new belt, first put the belt installation tool on the pulley (Figure A).

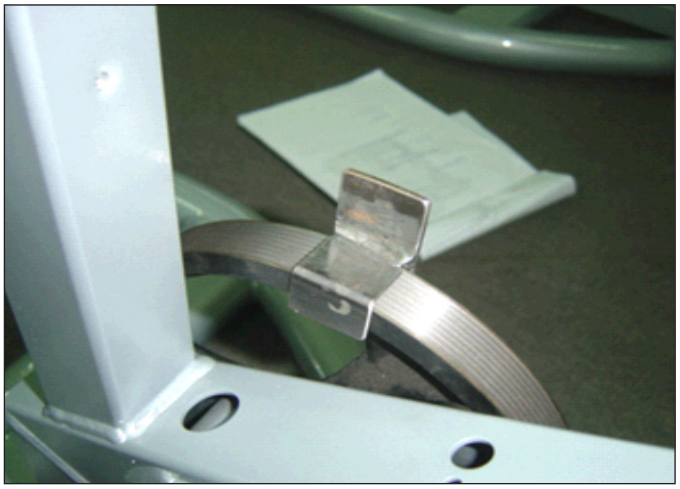


FIGURE A

6) Put the new belt on the installation tool (Figure B).
7) Turn the pulley until the belt is installed. Rotate the pulley at least 3 full rotations to insure that the belt is centered.

FIGURE B

8) Reverse Steps 1-4 to re-assemble the unit.
9) Test the Ascent Trainer for function as outlined in Section 9.22. .

9.6 DRIVE BELT REPLACEMENT

1) Turn off the power and disconnect the cord from the machine.
2) Remove the front disks from the machine as outlined in Section 9.1.
3) Loosen the belt tension bolt on the left side of the tension pulley and rotate the pulley counter-clockwise until there is enough slack in the belt to remove it (Figures A & B).

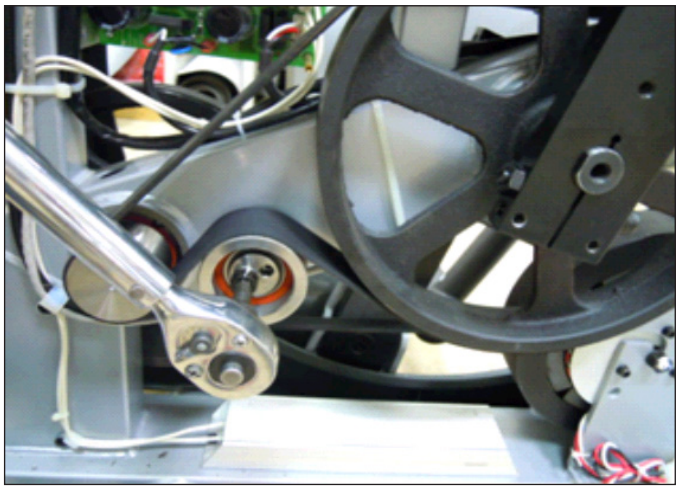


FIGURE A

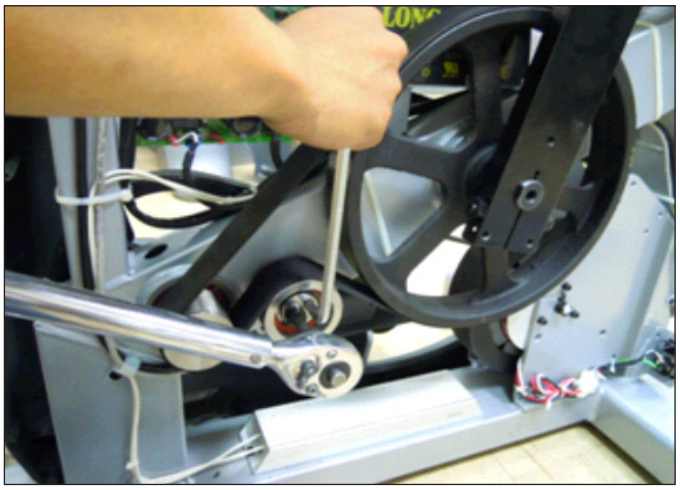


FIGURE B

4) Install the replacement belt and reverse necessary steps to secure the assembly until the belt is tight. ***NOTE:*** Tighten the drive belt to 180 lbs. for a new belt, 150 lbs. for a used belt. The idler bolt should be torqued to 80 N-m.
5) Test the Ascent Trainer for function as outlined in Section 9.22.

9.7 PULLEY AXLE SET REPLACEMENT

1) Turn off the power and disconnect the cord from the machine.
2) Remove both front disks from the machine as outlined in Section 9.1.
3) Loosen the belt tension bolt on the right side until there is enough slack to remove the drive belt (Figure A).
4) On the right side of the frame, remove the retaining clip that holds the pulley axle bearing into the frame (Figure B).

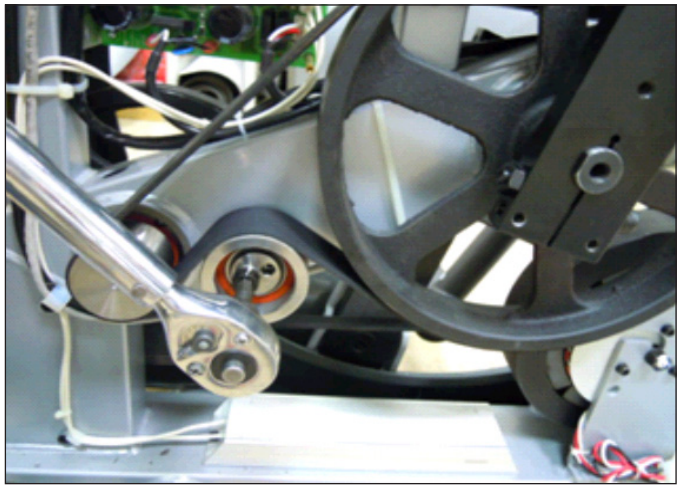


FIGURE A

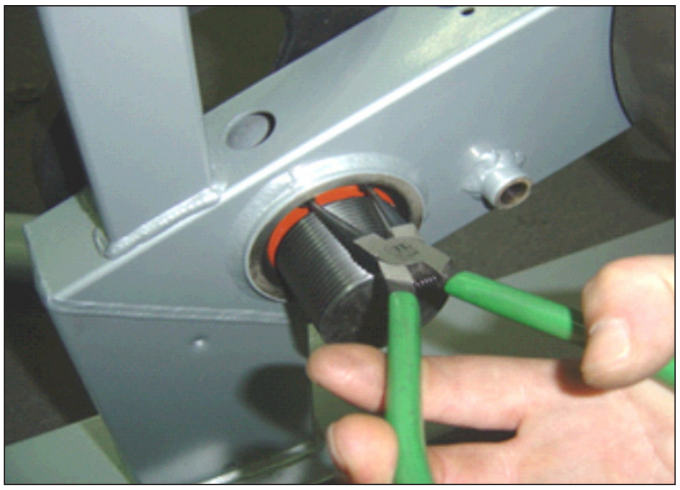


FIGURE B

5) On the left side of the frame, remove the retaining ring that holds the pulley axle bearing into the frame (Figure C).
6) Remove the pulley axle set assembly from the frame. Clean any debris from the hole in the frame (Figure D).

FIGURE C

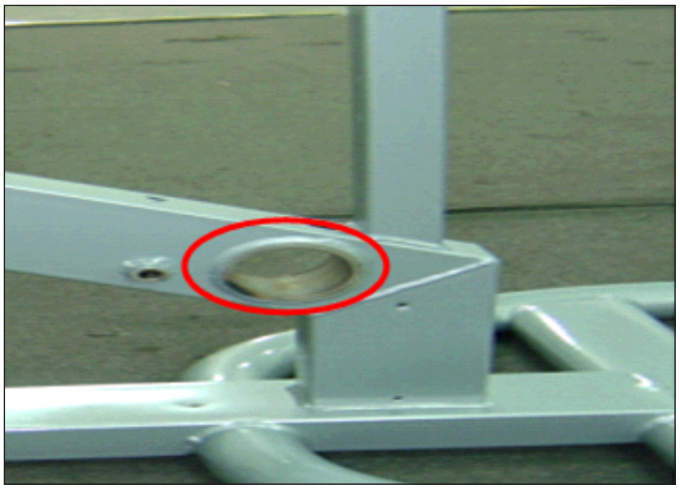


FIGURE D

7) Reverse Steps 1-6 to install a new pulley axle set. Rotate the pulley to make sure that the motion is smooth and that there is no wobbling to one side. Re-install the belts as outlined in Sections 9.5 and 9.6.
8) Test the Ascent Trainer for function as outlined in Section 9.22.

9.8 DRIVE AXLE SET REPLACEMENT

NOTE: A Matrix special tool is needed to correctly replace a drive axle. Order part # 0000094817 from Matrix CTS at 866-693-4863 ext 3.

1) Turn off the power and disconnect the cord from the machine.
2) Remove the front disks from the machine as outlined in Section 9.1.
3) Remove both belts as outlined in Sections 9.5 & 9.6.
4) On the left side of the frame, remove the retainer clip that holds the drive axle bearings in the frame (Figure A).
5) Install an M10 screw into the drive axle (Figure B).

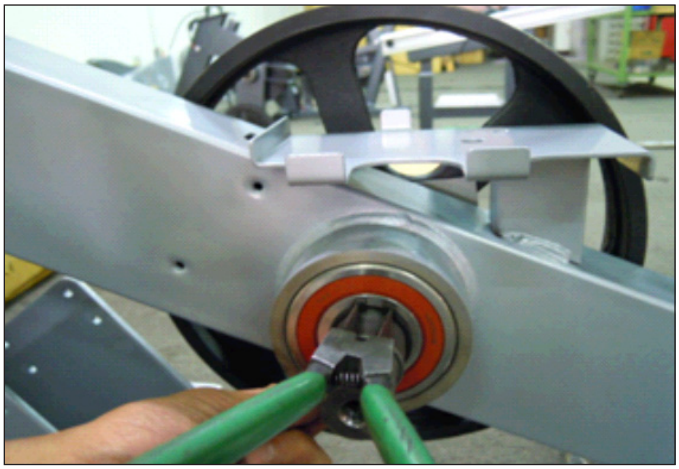


FIGURE A

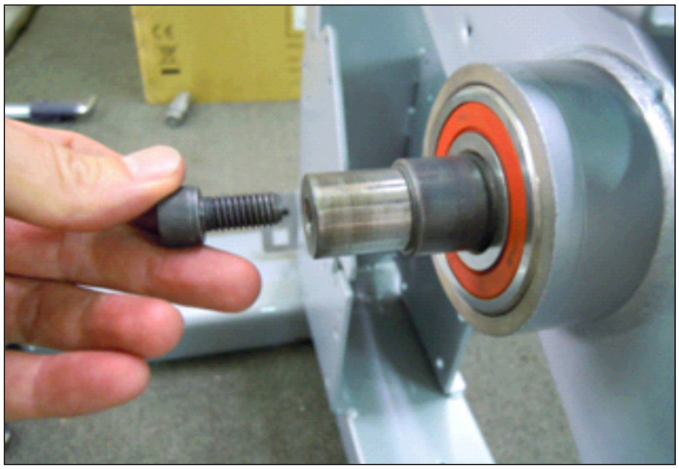


FIGURE B

6) Turn the screw until the head is close to the drive axle (Figure C).
7) Use a hammer to hit the screw until the drive axle assembly is loose in the frame, and remove it (Figure D).

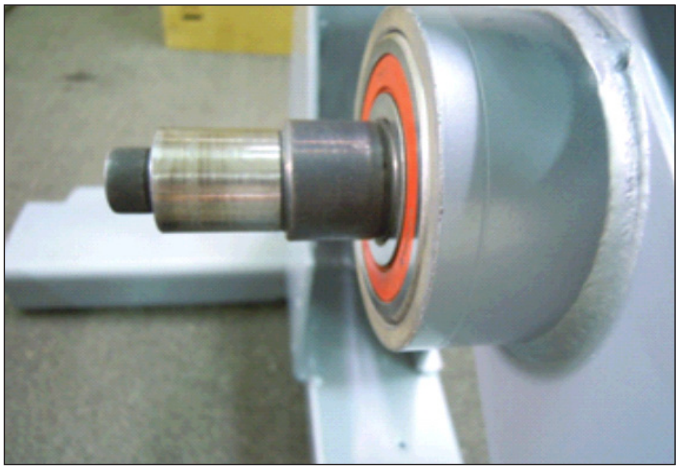


FIGURE C

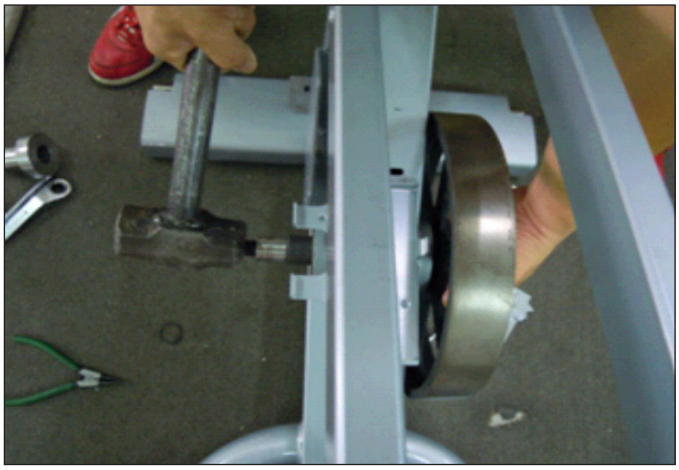


FIGURE D

8) Install the tool into the hole in the frame (Figure E).
9) Use a rubber mallet to hit the end of the tool until the bearing can be removed from the frame (Figure F).

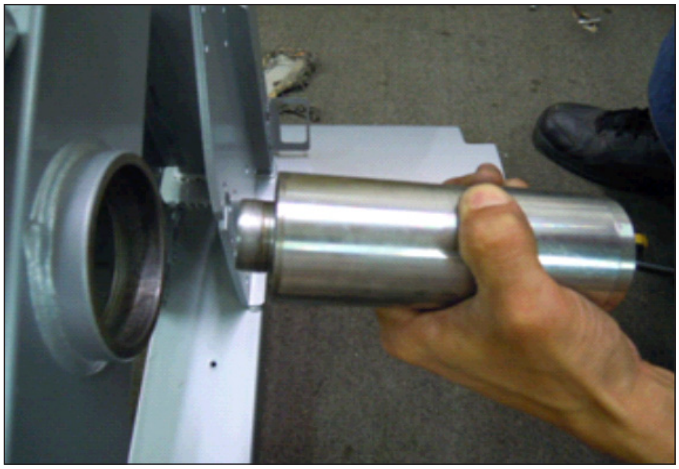


FIGURE E

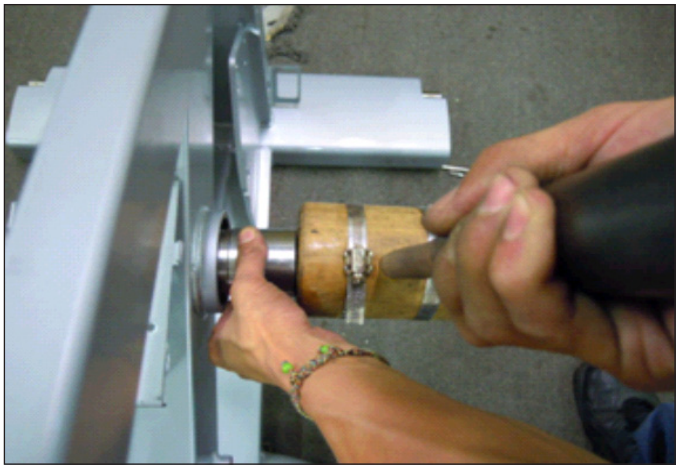


FIGURE F

9.8 DRIVE AXLE SET REPLACEMENT - CONTINUED

10) The drive axle should have come with an iron plate installed (Figure G).
11) Assemble the Matrix tool as shown in Figure H.

FIGURE G

FIGURE H

12) Slide the drive axle assembly into the frame from the right side. Install the bearing cap portion of the tool into the left side of the frame (Figure I).
13) Mount the other tool from Figure H behind the bearing cap portion of the tool. Use the M10 x 65L screw with a washer and a nut to attach the tool to the drive axle (Figure J).

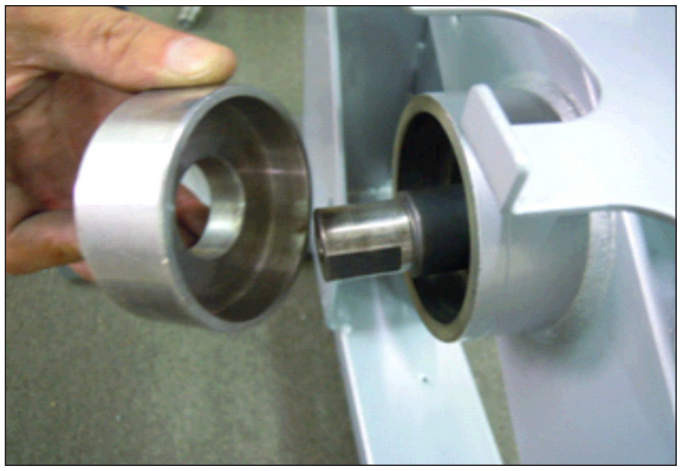


FIGURE I

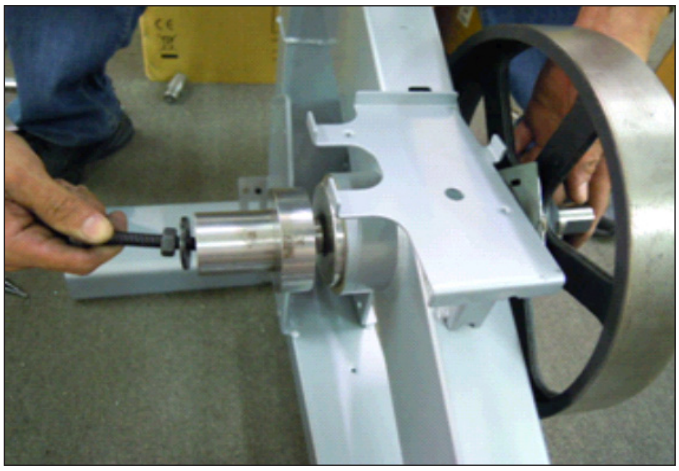


FIGURE J

14) Turn the screw at least 4 full revolutions into the drive axle. Then turn the nut until it is close to the cup portion of the tool (Figure K).
15) Use a wrench to hold the screw, then turn the nut to pull the drive axle into the frame (Figure L).

FIGURE K

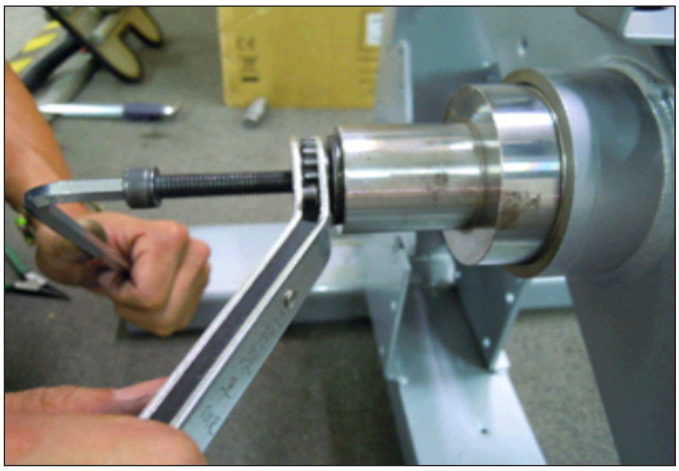


FIGURE L

9.8 DRIVE AXLE SET REPLACEMENT - CONTINUED

16) Turn the nut until the iron plate is close to the frame on the right side (Figure M).
17) Remove the tools, then insert the bearing into the hole in the frame on the left side (Figure N).

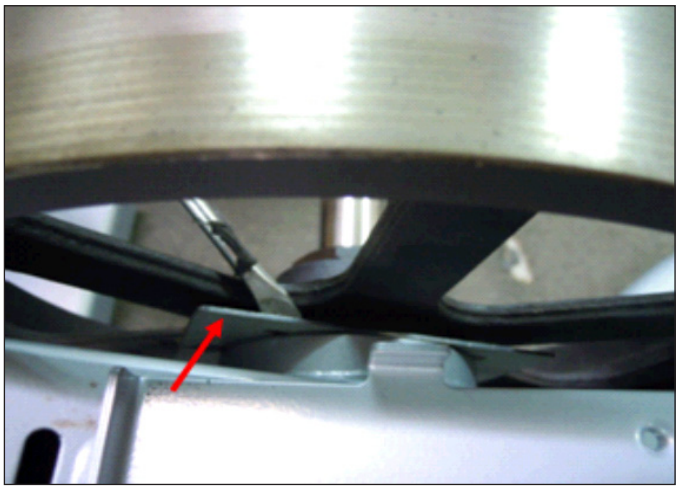


FIGURE M

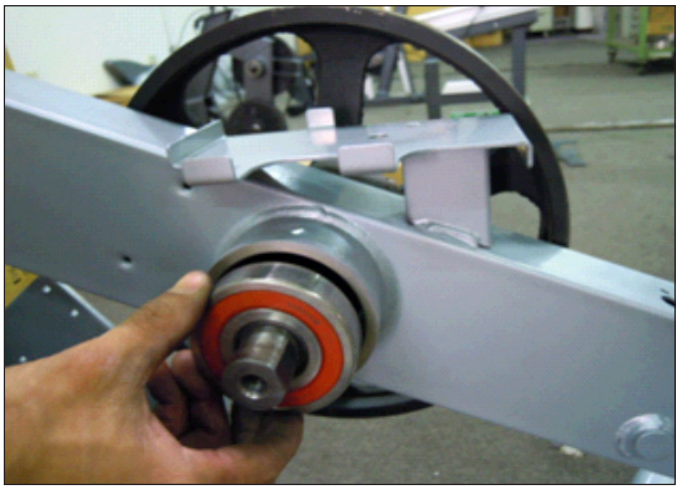


FIGURE N

18) Again use the M10 x 65L screw with a washer and a nut to attach the tool to the drive axle (Figure O).
19) Turn the screw at least 4 full revolutions into the drive axle. Then turn the nut until it is close to the cup portion of the tool (Figure P).

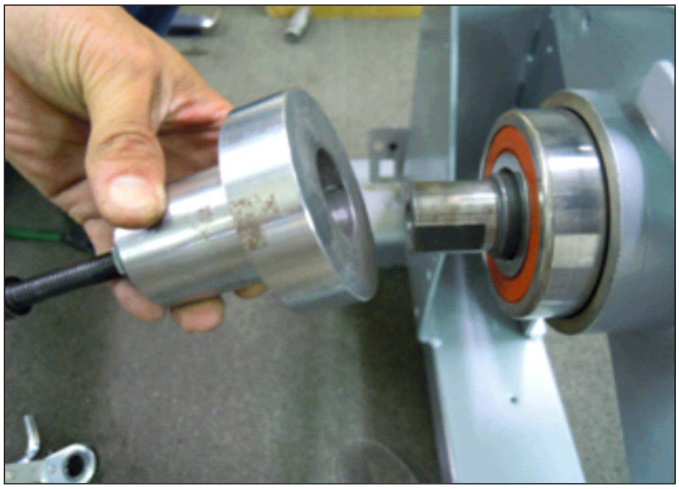


FIGURE O

FIGURE P

20) Use a wrench to hold the screw, then turn the nut to push the bearing into the hole in the frame (Figure Q).
21) Insert the retainer clip to hold the bearing in the frame (Figure R).

FIGURE Q

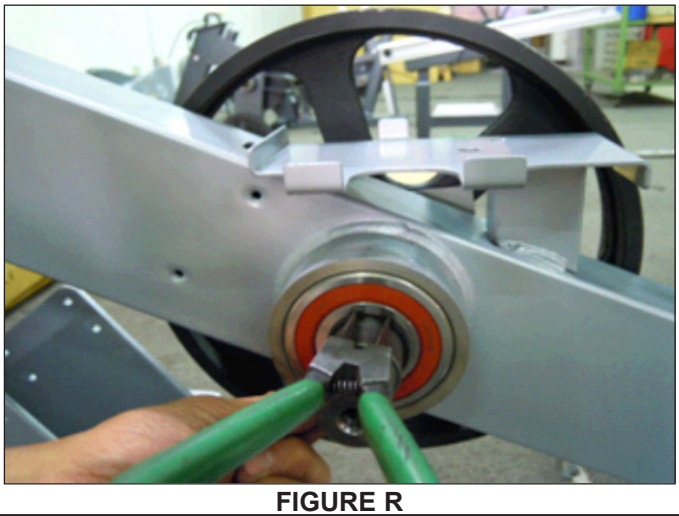


FIGURE R

9.8 DRIVE AXLE SET REPLACEMENT - CONTINUED

22) Use a screwdriver to remove the iron plate from the drive axle (Figures S & T).

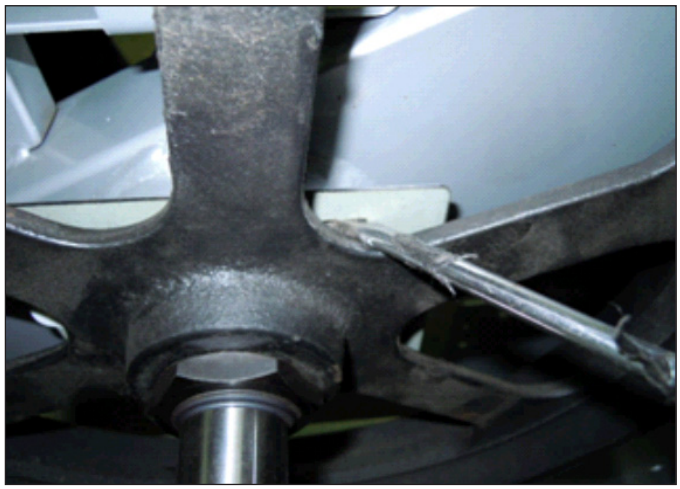


FIGURE S

FIGURE T

23) Re-install the belts as outlined in Sections 9.5 and 9.6.
24) Test the Ascent Trainer as outlined in Section 9.22.

9.9 CRANK REPLACEMENT

1) Turn off the power and disconnect the cord from the machine.
2) Remove the front disks from the machine as outlined in Section 9.1.
3) Remove the screw from the crank (Figure A).
4) Insert an M10 screw (should be at least 40 long) into the crank hole. Then turn the screw until the crank can be separated from the axle (Figure B).

FIGURE A

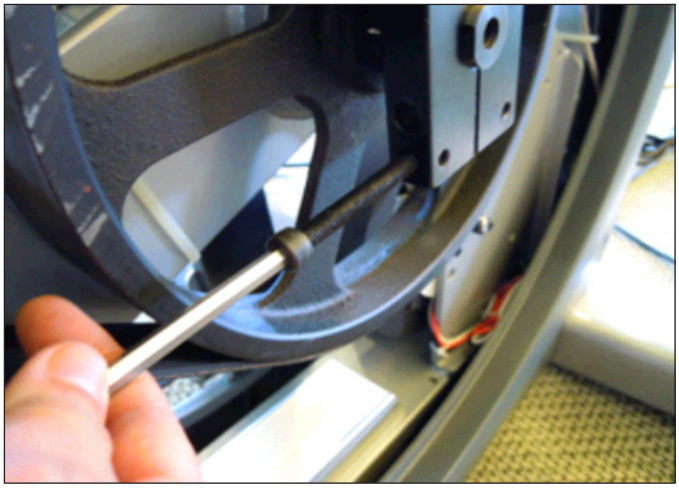


FIGURE B

5) Install the replacement crank. There should be a 4mm gap between the end of the drive axle shaft and the crank (Figure C).

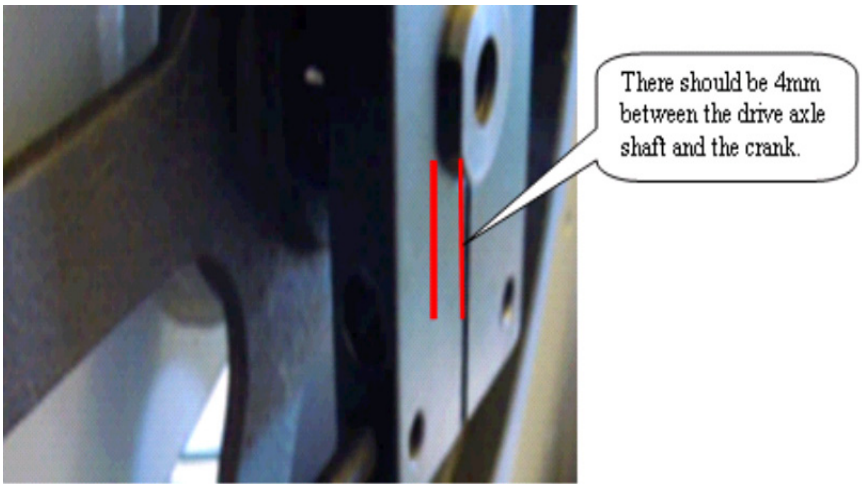


FIGURE C

6) Install the crank screw. ***NOTE:*** This screw should be torqued to 80 N-m.
7) Reverse Steps 1-2 to re-assemble the unit.

9.10 CONSOLE REPLACEMENT

1) Turn off the power and disconnect the cord from the machine.
2) Remove the 5 screws that hold the console to the top of the console mast (Figure A).
3) Disconnect the console cable and other wiring and remove the console (Figure B).

FIGURE A

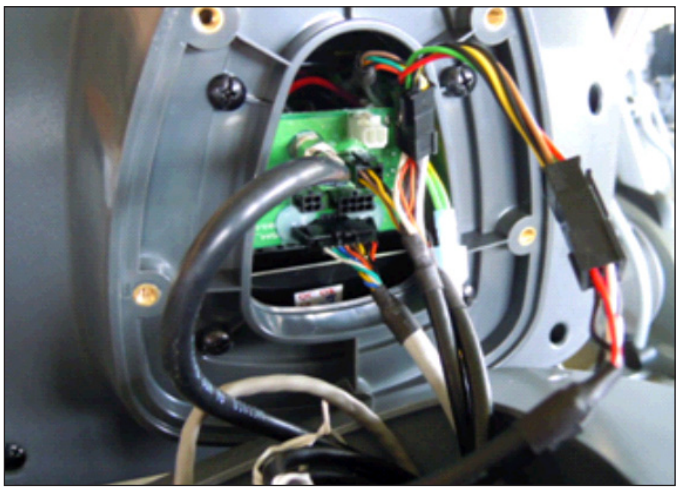


FIGURE B

4) Remove the 5 screws that hold the mounting plate to the console (Figure C).

FIGURE C

5) Attach the mounting plate to the new console.
6) Connect the wire connections to the new console.
7) Carefully push the wires into the console and mast until they are clear of the console / mast connection and attach the console to the mast using the 5 screws removed in Step 2.
8) Test the Ascent Trainer for function as outlined in Section 9.22.

9.11 CONSOLE OVERLAYS & KEYPADS REPLACEMENT

1) Remove the console as outlined in Section 9.10.
2) Remove the back cover of the console (Figure A).
3) Unplug and remove the faulty overlay (Figure B).

FIGURE A

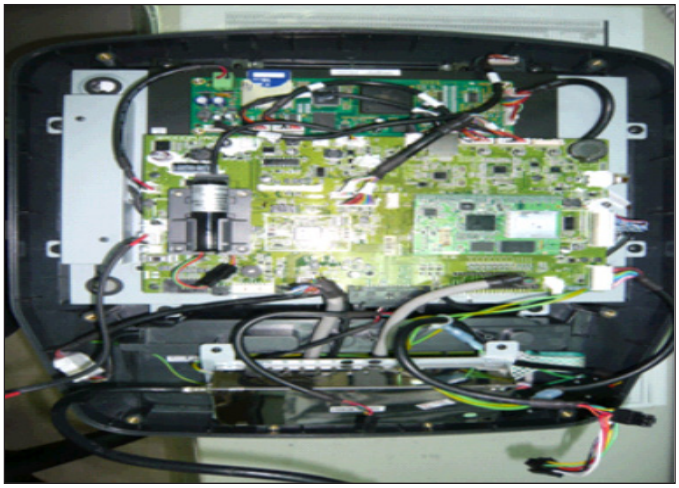


FIGURE B

4) Clean the console area with alcohol to remove any left over adhesive (Figure C).
5) Peel part of the protective film from the back of the overlay / keypad (Figure D).

FIGURE C

FIGURE D

9.11 CONSOLE KEYPAD / OVERLAY REPLACEMENT - CONTINUED

6) Push the overlay / keypad ribbon cable through the hole in the console and plug it in (Figure E).
7) Match the overlay / keypad to the cutout in the console (Figure F).

FIGURE E

FIGURE F

7) Press down on the corners of the overlay / keypad to keep it in place. Then remove the protective film (Figure G).
8) Once the overlay / keypad is in the correct position, press down on it to adhere it in positions (Figure H).

FIGURE G

FIGURE H

9) Use the same procedure to replace any additional faulty overlays / keypads. ***NOTE:*** Overlays / keypads cannot be re-used.

9.12 CONSOLE MAST HANDLEBAR REPLACEMENT

1) Turn off the power and disconnect the cord from the machine.
2) Remove the 4 bolts that hold the handlebar to the console mast (Figure A).

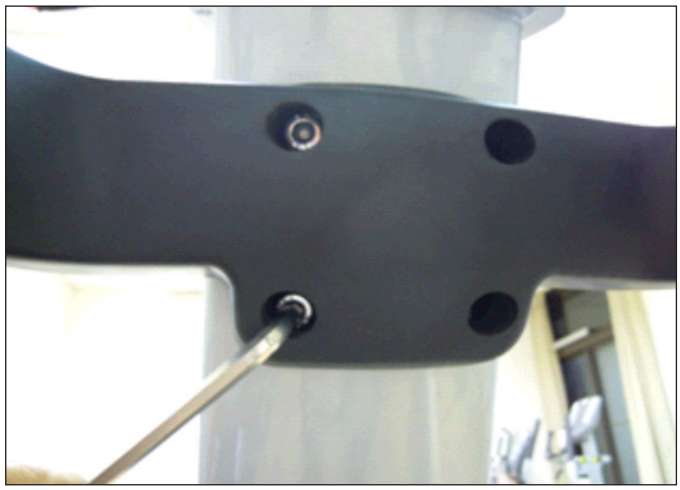


FIGURE A

4) Pull the handlebar away from the console mast to expose the HR grip wiring (Figure B).
5) Carefully remove the wires from inside the console mast until the connectors on the ends come free and disconnect (Figure C).

FIGURE B

FIGURE C

6) To install a new handlebar assembly, connect the new handlebar and carefully push the heart rate wires into the console mast.
7) Attach the new handlebar assembly to the console mast using the 4 screws removed in Step 3.
8) Test the Ascent Trainer for function as outlined in Section 9.22.

9.13 INCLINE MOTOR REPLACEMENT

1) Turn off the power and disconnect the cord from the machine.
2) Remove the front disks as outlined in Section 9.1.
3) Complete Steps 6-8 and 10 from Section 9.2 to remove the cupholder and top shrouds from the unit (the main side shrouds do not need to be removed).
4) Disconnect the incline motor ground wire from the frame and disconnect the incline motor power wire (Figures A & B). If unsure if the incline motor is the issue, plug in the new incline motor at this time to see if it is energized. If it is not, the issue is likely with the LCB.

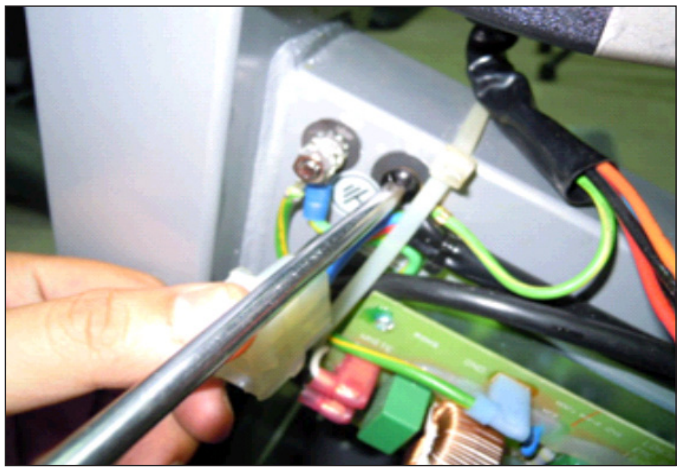


FIGURE A

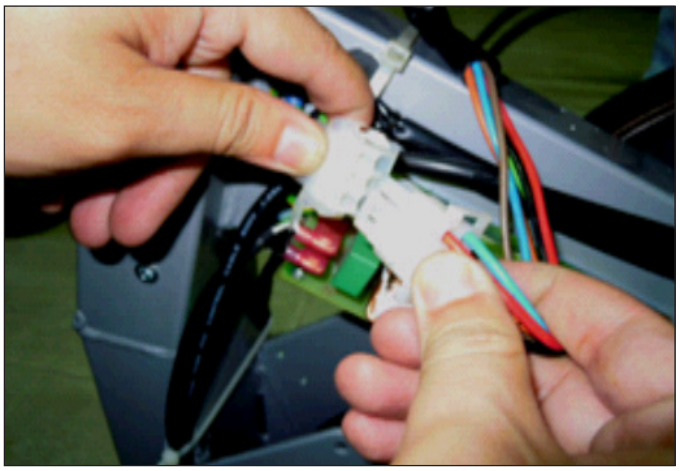


FIGURE B

5) Remove the spring clip to separate the incline motor from the frame (Figure C).
6) Remove the incline motor by loosening the pivot bolts on each side (Figure D - ***NOTE:*** Figure D shows the unit with the shrouds removed for clarity). ***NOTE: Prior to loosening the pivot bolts, secure the incline motor as it can fall once the pivot bolts are loosened.***

FIGURE C

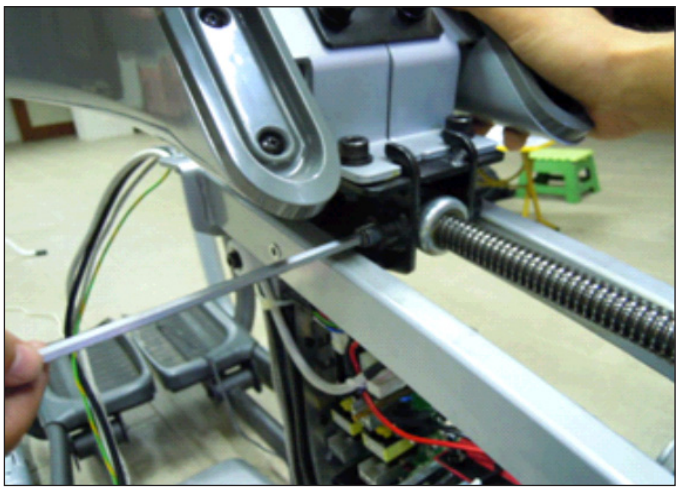


FIGURE D

9.13 INCLINE MOTOR REPLACEMENT - CONTINUED

7) While the incline motor is out, the carriage rollers should be checked. Turn the rollers. The rollers should turn smoothly with only a small amount of friction (Figure E).
8) If the rollers need to be adjusted, loosen the horizontal bolts simultaneously first, then adjust the roller friction by adjusting the vertical screws simultaneously (Figure F).

FIGURE E

Loosen these 2 horizontal bolts first (torque these bolts to 40 N-m when re-tightening.
Adjust the rollers by turning these 2 vertical screws.

FIGURE F

9) Prepare the new incline motor for installation. The new incline motor should have the nut placed close to the end of the shaft (Figure G).

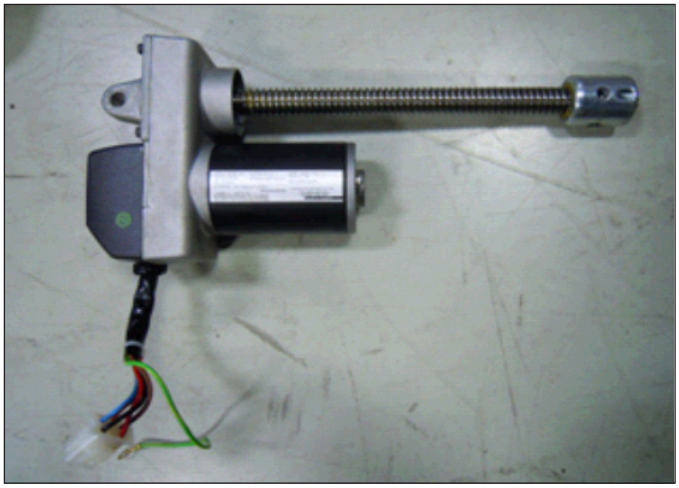


FIGURE G

9.13 INCLINE MOTOR REPLACEMENT - CONTINUED

10) Plug in the power wire of the new incline motor (with the motor still outside the unit). Plug in the unit. Press ENTER, 3, 0, 0, 1, ENTER to go to Service Mode. Scroll with the LEVEL UP or DOWN keys until Service 6 is displayed. Press ENTER to start Auto Calibration.
11) Turn off power immediately when the new motor has been driven to the limit switch at the TOP of the incline range during Auto Calibration.
NOTE: You are stopping power when the unit is 1/2 way through calibration.
12) Push the carriage towards the rear of the unit. There should be a gap of 8mm (+/- 2mm) between the carriage and the frame. Use an 8mm Allen wrench to maintain this spacing (Figure H - ***NOTE:*** Figure H shows a unit with the console mast removed for clarity).
13) Turn the nut on the incline motor until the screw holes in the nut line up with the screw holes on the carriage (Figure I). Tighten the screws loosened in Step 6 to attach the incline motor nut to the carraige. Torque these screws to 25 N-m.

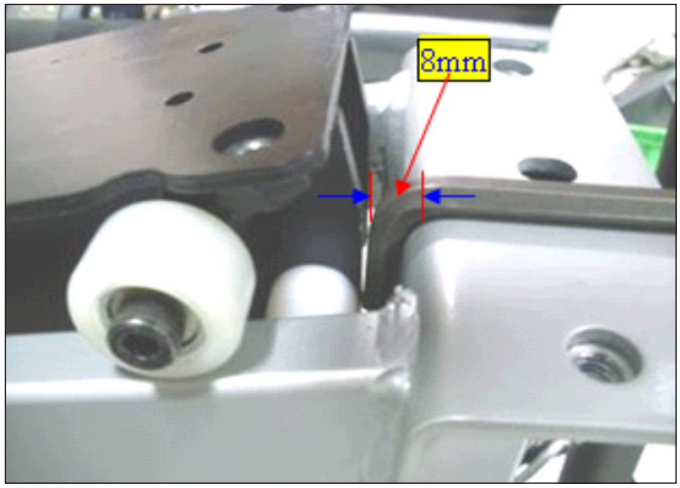


FIGURE H

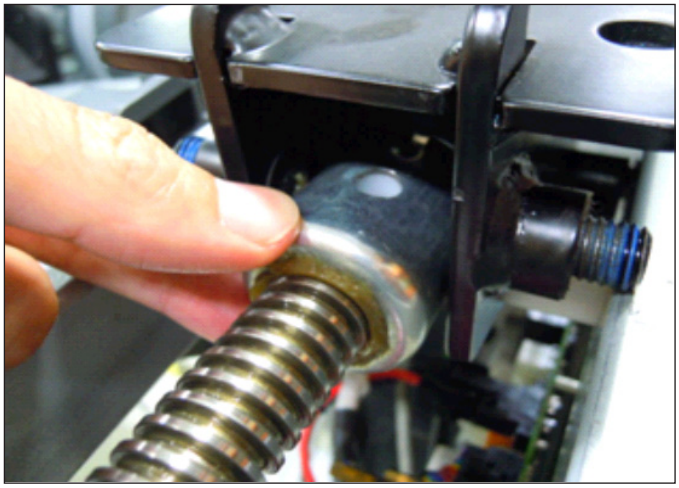


FIGURE I

14) Plug in the unit. Allow the incline to reset.
15) Press ENTER, 3, 0, 0, 1, ENTER to go to Service Mode. Start Auto Calibration. Allow Auto Calibration to completely run. Make sure that the incline motor carriage is not hitting the frame at the top or bottom of the movement. If any issues are seen, re-do Steps 10-13.
16) Reverse Steps 1-5 to re-assemble the unit.
17) Test the Ascent Trainer for function as outlined in Section 9.22.

9.14 DUAL ACTION HANDLEBAR REPLACEMENT

1) Remove the plastic cover where the dual action handlebar meets the link arm (Figure A).
2) Remove the bolt and bushings where the dual action handlebar and the link arm meet (Figure B).

FIGURE A

FIGURE B

3) Remove the two bolts that hold on the pivot cap and remove the cap (Figure C).
4) Unplug and separate the heart rate connector exposed once the pivot cap is removed. Then remove the 4 screws that hold the dual action handlebar to the console mast (Figure D).

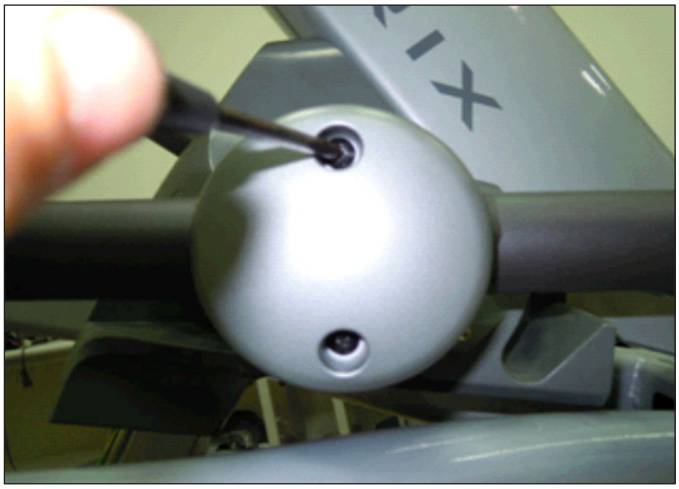


FIGURE C

FIGURE D

5) Reverse steps 1-4 to install a new dual action handlebar.
6) Test the Ascent Trainer for function as outlined in Section 9.22.

9.15 FOOT PEDALS REPLACEMENT

1) Pull up on and remove the rubber portion of the pedal (Figure A).
2) Remove the 4 screws that hold the plastic pedal to the foot plate (Figure B).

FIGURE A

FIGURE B

3) Remove the plastic foot pedal (Figure C).

FIGURE C

4) Clean the foot plate to remove any rubber or debris.
5) Reverse Steps 1-4 to install a new foot pedal.
6) Test the Ascent Trainer as outlined in Section 9.22.

9.16 PEDAL ARM REPLACEMENT

1) Remove the plastic cover where the pedal arm attaches to the crank (Figure A).
2) Disconnect the pedal arm from the crank (Figure B).

FIGURE A

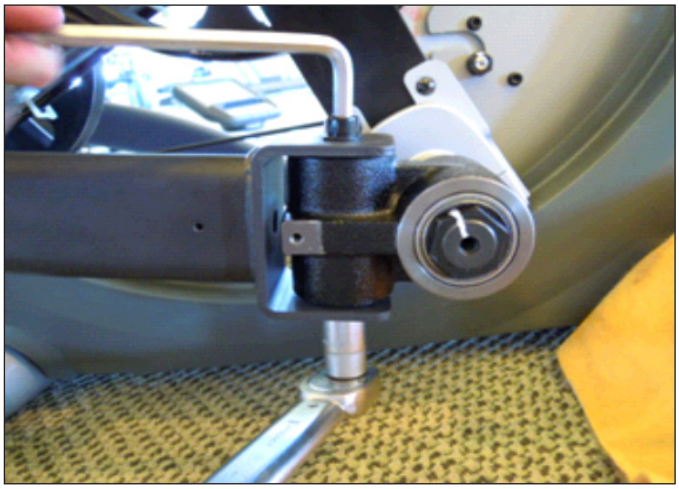


FIGURE B

3) Remove the plastic cap from the swing arm (Figure C).
4) Remove the bolt that holds the pedal and swing arms together (Figure D).

FIGURE C

FIGURE D

5) The swing arm can now be separate from the pedal arm (Figure E).
6) Remove the bolt that holds the link arm to the pedal arm and remove the pedal arm (Figure F).

FIGURE E

FIGURE F

7) Reverse Steps 1-5 to install a new pedal arm. ***NOTE:*** Torque the bolt removed in Step 4 to 80 N-m and the bolt / nut removed in Step 2 to 70 N-m.
8) Test the Ascent Trainer for function as outlined in Section 9.22.

9.17 LINK ARM REPLACEMENT

1) Remove the plastic cover where the dual action handlebar meets the link arm (Figure A).
2) Remove the bolt and bushings where the dual action handlebar meets the link arm (Figure B).

FIGURE A

FIGURE B

3) Remove the bolt that holds the link arm to the pedal arm and remove the link arm (Figure C).

FIGURE C

4) Reverse Steps 1-3 to install a new link arm.
5) Test the Ascent Trainer for function as outlined in Section 9.22.

9.18 SWING ARM REPLACEMENT

1) Remove the bolt from the upper pivot joint on the swing arm (Figure A).
2) Remove the plastic cap from the swing arm (Figure B).

FIGURE A

FIGURE B

3) Remove the bolt that holds the swing arm to the pedal arm (Figure C).
4) Take the bolt removed in Step 1 and turn it into the shaft (Figure D).

FIGURE C

FIGURE D

5) Use a mallet to hit the head of the bolt until the swing arm can be separate from the pedal arm, and remove the pedal arm (Figures E & F).

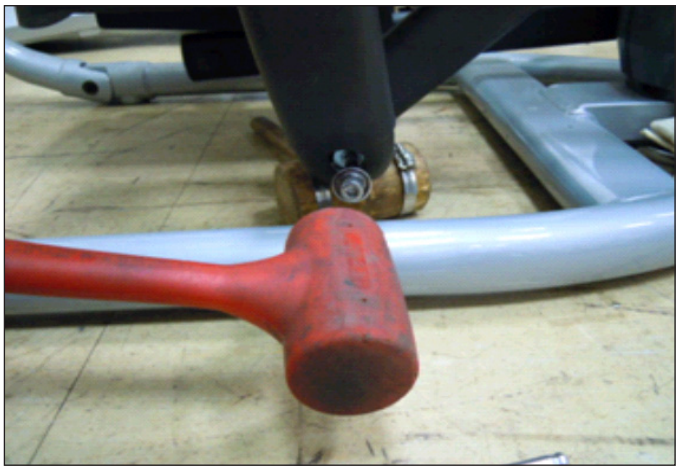


FIGURE E

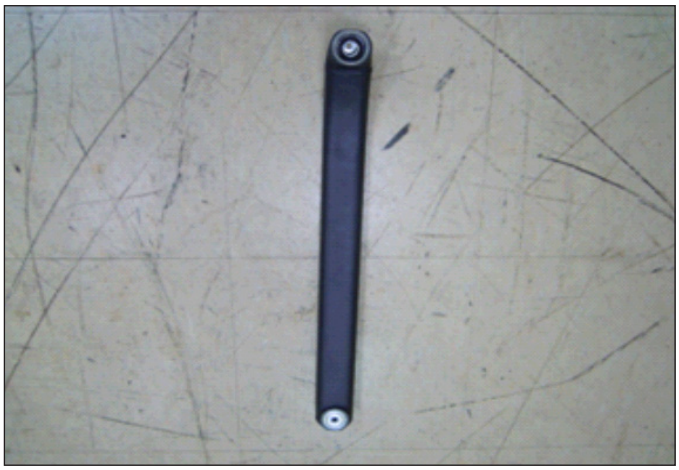


FIGURE F

6) Reverse Steps 1-5 to install a new swing arm. NOTE: Torque the bolts removed in Steps 1 & 3 to 80 N-m when installing a new swing arm.
7) Test the Ascent Trainer for function as outlined in Section 9.22.

9.19 VERTICAL STABILIZER ARM REPLACEMENT

1) Remove the bolt that holds the vertical stabilizer arm to the frame (Figures A & B).

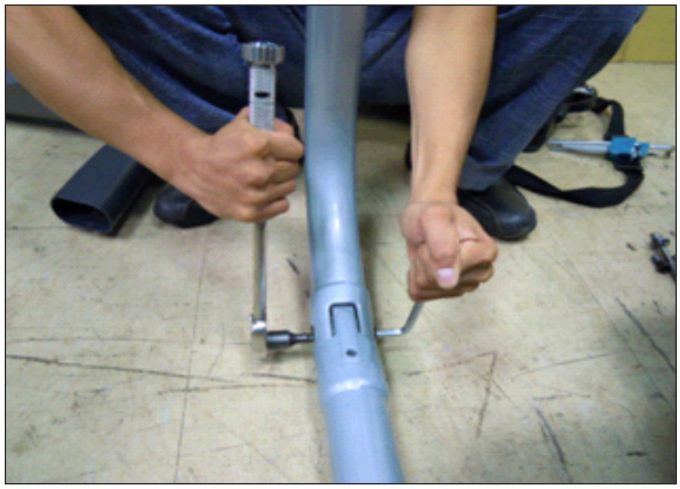


FIGURE A

FIGURE B

2) Remove the bolt from the upper pivot joint of the vertical stabilizer arm (Figure C).
3) Remove the vertical stabilizer arm (Figure D).

FIGURE C

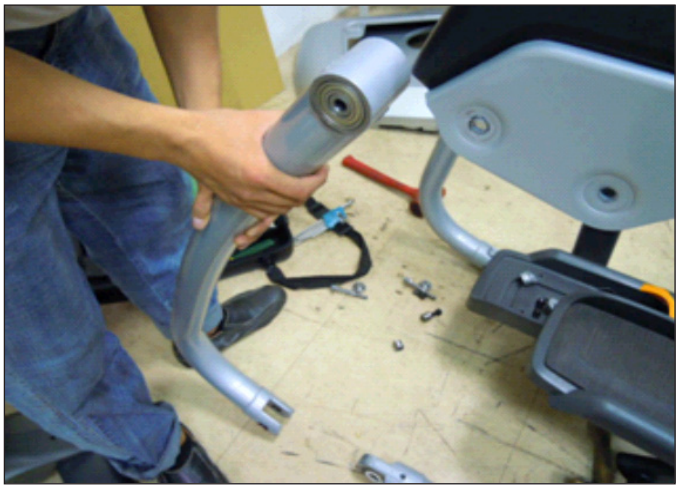


FIGURE D

4) Reverse Steps 1-3 to install a vertical stabilizer arm. ***NOTE:*** Tighten the bolt removed in Step 2 to 80 N-m torque.
5) Test the Ascent Trainer for function as outlined in Section 9.22.

9.20 INCLINE ARM COVER REPLACEMENT

1) Remove the screw that holds the plastic cover on the arm (Figures A & B).

FIGURE A

FIGURE B

2) Remove the incline arm cover (Figure C).

FIGURE C

3) Reverse Steps 1-2 to install a new incline arm.

9.21 HANDLEBAR SERVICE

1) All items on the handlebar are removed using a Phillips screwdriver from the underside of the bar.
2) Once the screws are removed, lift the part carefully, then disconnect any wire connections to fully remove the part. This includes any resistance & elevation buttons and heart rate grip plates (Figures A - D).

FIGURE A

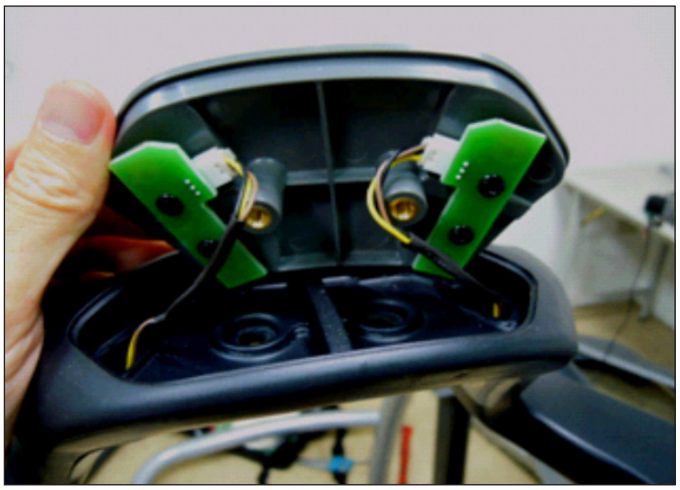


FIGURE B

FIGURE C

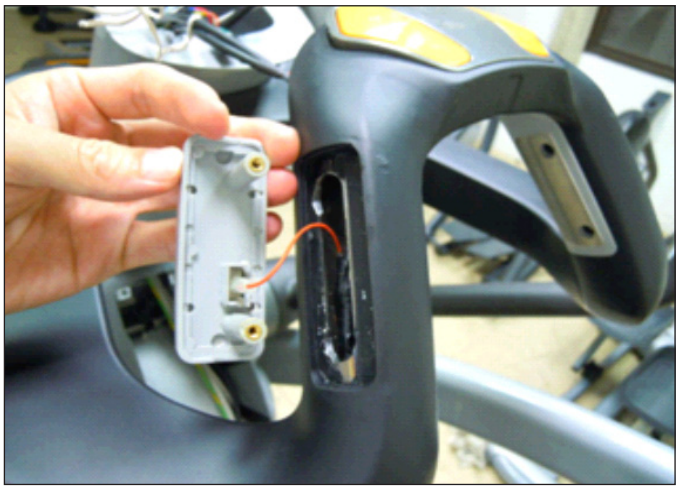


FIGURE D

9.22 TESTING THE ASCENT TRAINER

ONCE THE UNIT OR REPLACEMENT PART IS FULLY INSTALLED AND ASSEMBLED AND PROPERLY PLACED ON THE FLOOR, USE THE FOLLOWING INSTRUCTIONS TO TEST THE MACHINE:

1) Enter Service Mode (ENTER, 3, 0, 0, 1, ENTER) and input the serial number of the console. Also set the Machine Type (See Section 7.2) and Keypad (See Section 7.3) and verify that the Date and Time are correct (See Section 7.5). ***NOTE:*** The console and unit power must be reset for some changes to go into affect. Cycle the power switch and press and hold the CHANNEL UP and CHANNEL DOWN keys for 3-5 seconds to reset the console power.

2) Enter Manager Mode (ENTER, 1, 0, 0, 1, ENTER) and turn on or off Asset Management or Virtual Active depending on whether the club has these functions. ***NOTE:*** The console and unit power must be reset for some changes to go into affect. Cycle the power switch and press and hold the CHANNEL UP and CHANNEL DOWN keys for 3-5 seconds to reset the console power.

3) Without hitting start or entering any exercise modes, stand on the machine and hold the handlebars while initiating movement to simulate exercising. While moving listen for any odd noises or squeaks.

4) After stopping movement, press the green GO key and begin using the machine.

5) Grasp the hand grips to check for proper heart rate response.

6) Press the LEVEL UP and DOWN keys on the console to make sure resistance is fully functional.

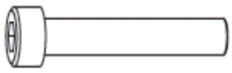
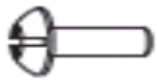
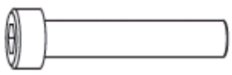
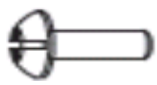
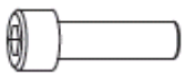
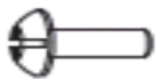
7) Press the ELEVATION UP and DOWN keys (fully incline and decline the machine) to make sure the incline motor function is fully operational.

8) If the Ascent Trainer has had an incline motor replaced, or if this is the initial installation, calibrate the lift motor (see Section 3.5).

10.1 ASCENT TRAINER SPECIFICATIONS

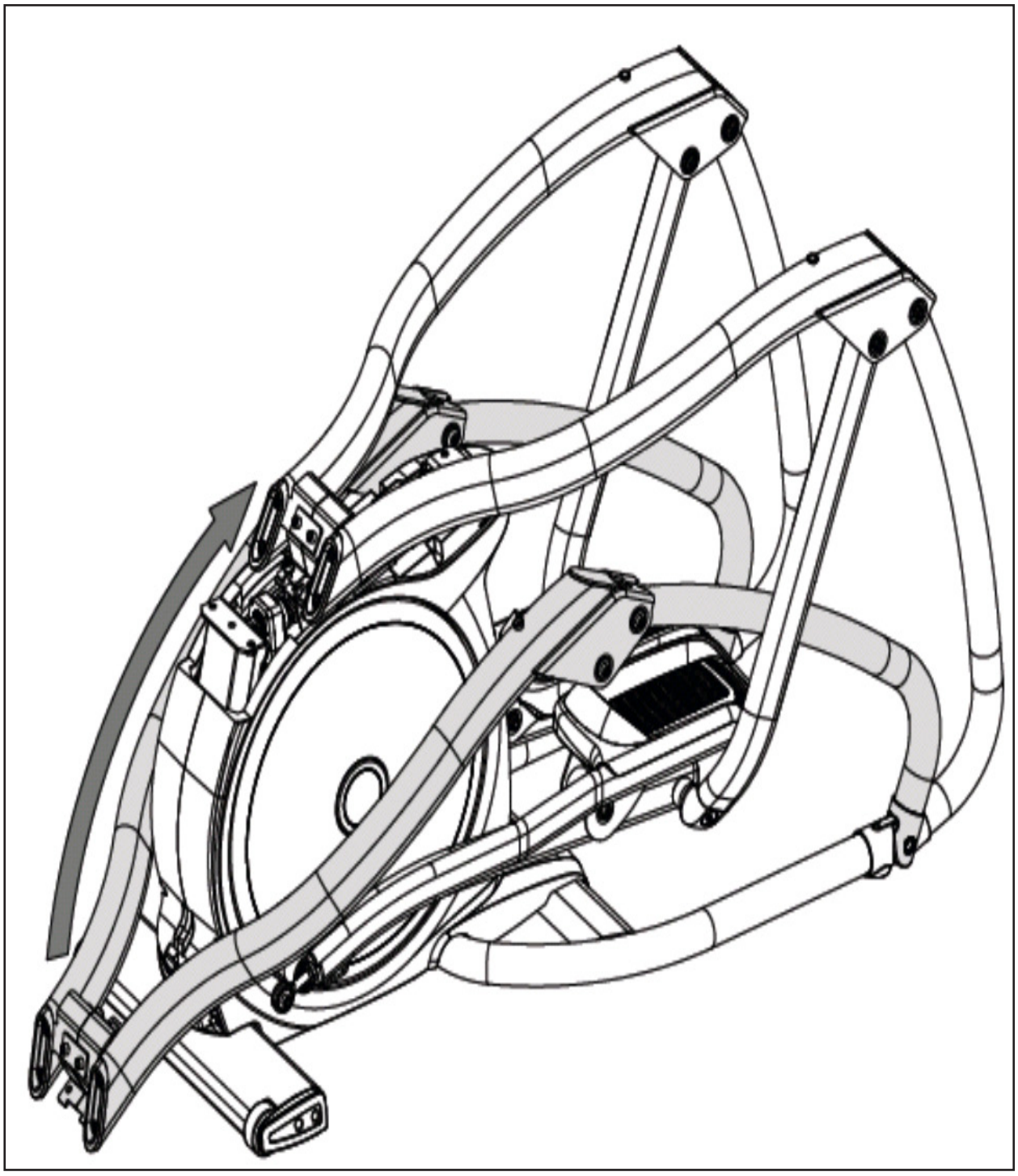
FEATURES	
Stride Length	20-24"
Incline Range	24% - 54% (15° range)
Contact and Telemetric Heart Rate Sensors	Yes
Cushioned Footpads	Yes - Premium
Q-Factor	2.5"
Handlebar Design	Multi-position dual action and ergo bend stationary.
Thumb Switch Controls	Yes
RESISTANCE SYSTEM	
Technology	Generator
Power Requirements	Self Powered - Powered 100V - 240V - 50 / 60 HZ AC
Minimum Watts	56 Self Powered
Minimum RPM	10 Powered / 25 Non-Powered
CONSOLE	
Display Type	15" Touch Screen
Display Feedback	Time, Distance, Calories, Calories per hour, Speed, Incline, Heart Rate, METs, Watts, Level, RPM, Dynamic Profile Display, Static Profile Display
User Defined Multi Language Display	Yes - English, German, French, Italian, Spanish, Dutch, Portuguese, Chinese, Japanese, Korean, Swedish, Finnish, Russian, Arabic
Resistance Levels	25
Workouts	Manual, Rolling, Intervals, Fat Burn, Glute Training, Fitness Test, Target HR, Constant Watts
CSafe, Fitlinxx Ready	Yes
Netpulse Ready	No
Fit Touch Technology	Yes
On the Fly Program Change	Yes
Integrated Vista Clear™ Digital Ready Television	Yes - 15" Screen Size
Fitconnexion™ Ready	No
Wireless Data Transmitter	Yes
IPod Compatible	Yes
Nike+ IPod Compatible	Yes
Personal Fan	Yes
USB Workout Tracking	Yes - Via www.livestrong.com
Virtual Active™ Compatible	Yes
TECHNICAL DATA	
Overall Dimensions (L x W x H)	81 x 34 x 79" (1780 x 742 x 1740mm)
Maximum User Weight	400 lbs / 181.4 kg
Unit Weight	445 lbs / 202.7 kg
Shipping Weight	476 lbs / 216.5 kg

10.2 ASSEMBLY HARDWARE

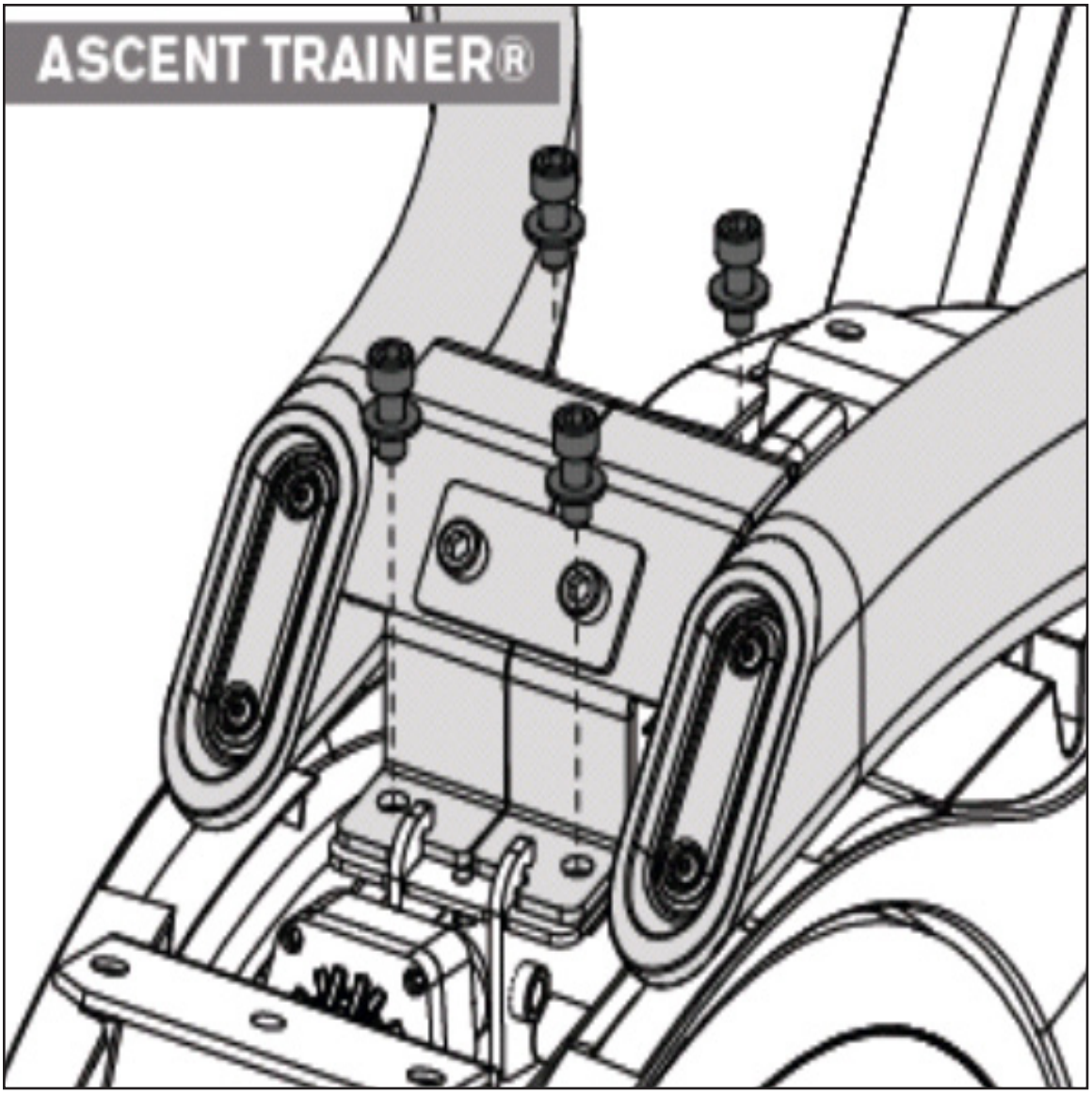
QUANTITY	SKETCH	DESCRIPTION	PACKAGE COLOR
4		SOCKET HEAD CAP SCREW (M10 X 1.5P X 25L) 10.9 GRADE MINIMUM	RED (2 BAGS)
4		FLAT WASHER (10.2 X 20 X 2.0T)	RED (2 BAGS)
1		SOCKET HEAD CAP SCREW (M10 X 1.5P X 100L) 12.9 GRADE MINIMUM	GREEN
2		FLAT WASHER (10.2 X 20 X 2.0T)	GREEN
1		HEX NUT (M10) 10.9 GRADE MINIMUM	GREEN
5		SCREW (M5 X 0.8P X 10L)	YELLOW
2		SCREW (M5 X 0.8 X 12L)	BLACK (2 BAGS)
4		SPRING WASHER (8.2 X 15.4 X 2.0T)	BLACK (2 BAGS)
4		SOCKET HEAD CAP SCREW (M8 X 1.25P X 20L) 10.9 GRADE MINIMUM	BLACK (2 BAGS)
1		SOCKET HEAD CAP SCREW (M8 X 1.25P X 45L) 10.9 GRADE MINIMUM	BLUE (2 BAGS)
3		SCREW (M5 X 0.8P X 16L)	BLUE (2 BAGS)
4		SOCKET HEAD CAP SCREW (M8 X 1.25P X 25L)	WHITE
4		SPRING WASHER (8.2 X 13.5 X 2.0T)	WHITE
12		SCREW (M5 X 0.8P X 16L)	PINK

10.3 ASCENT TRAINER ASSEMBLY STEPS

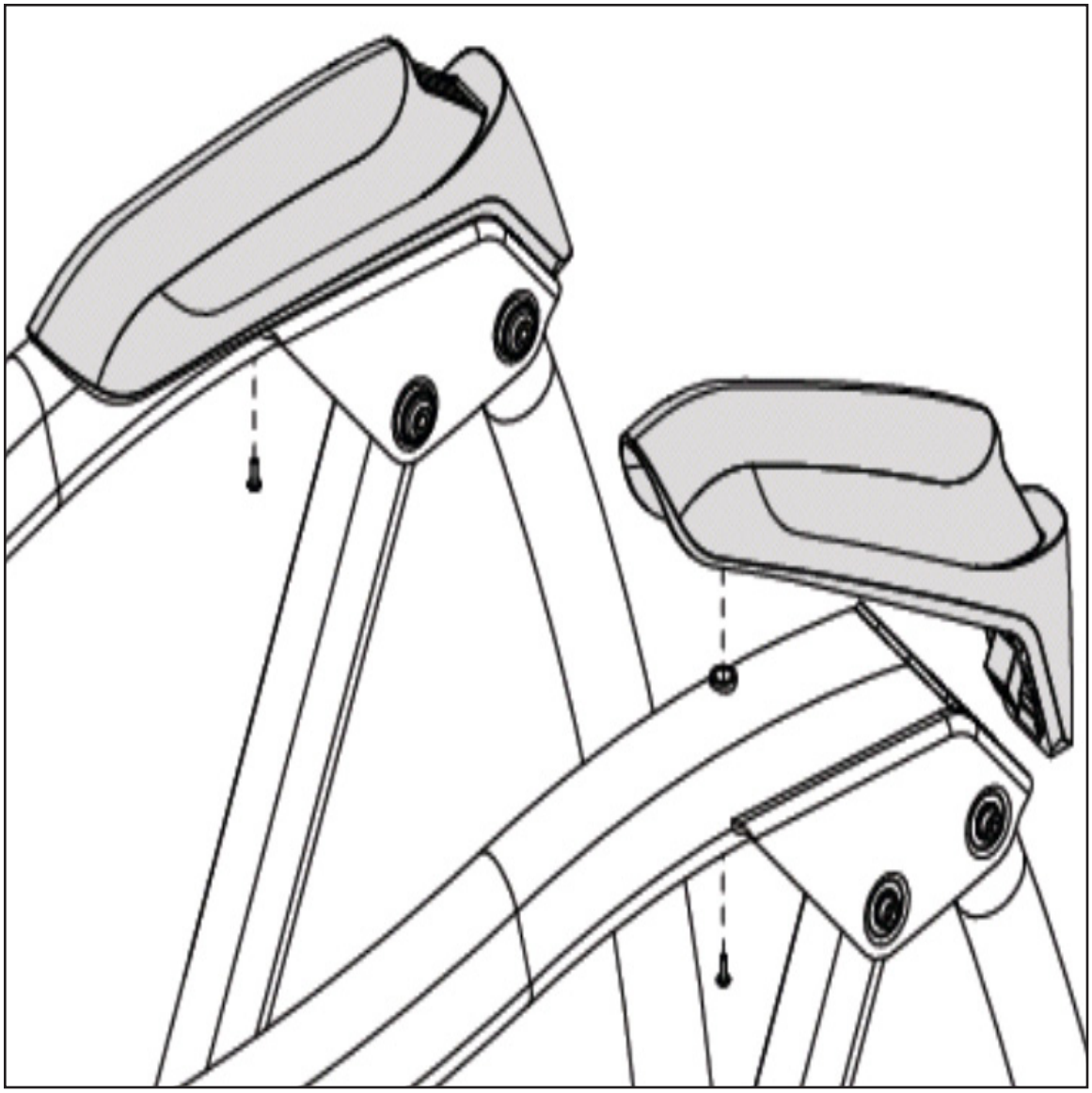
STEP 1



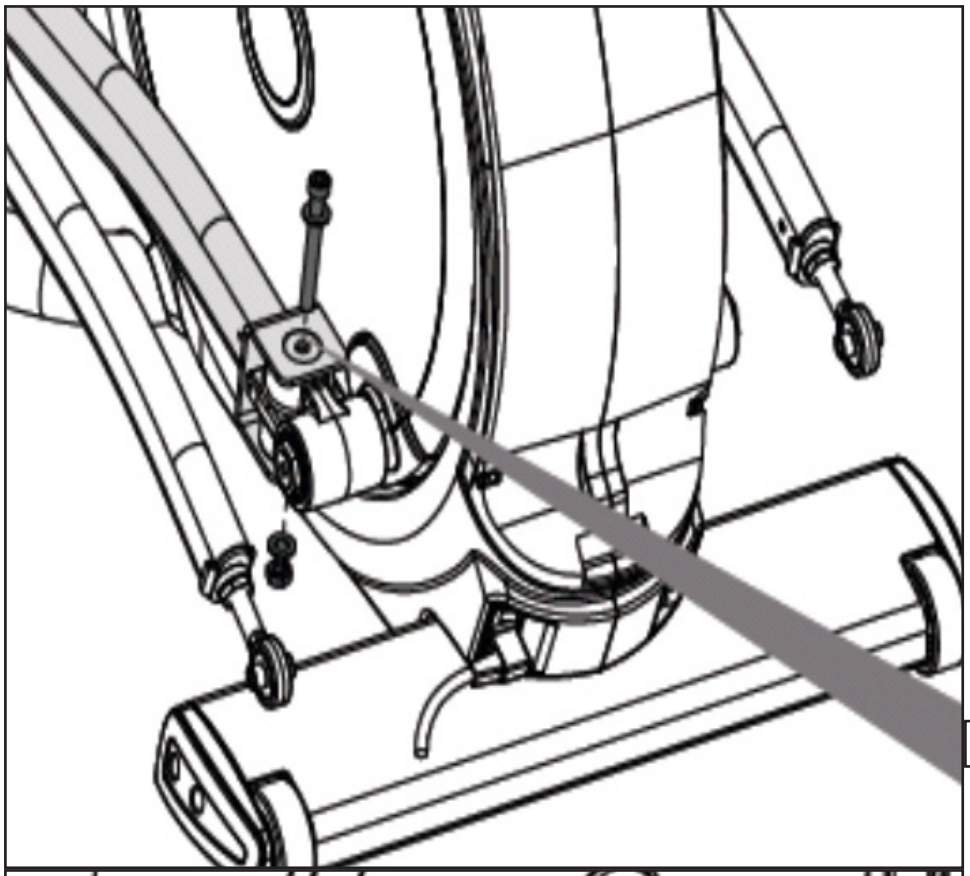
STEP 2 - RED HARDWARE BAG



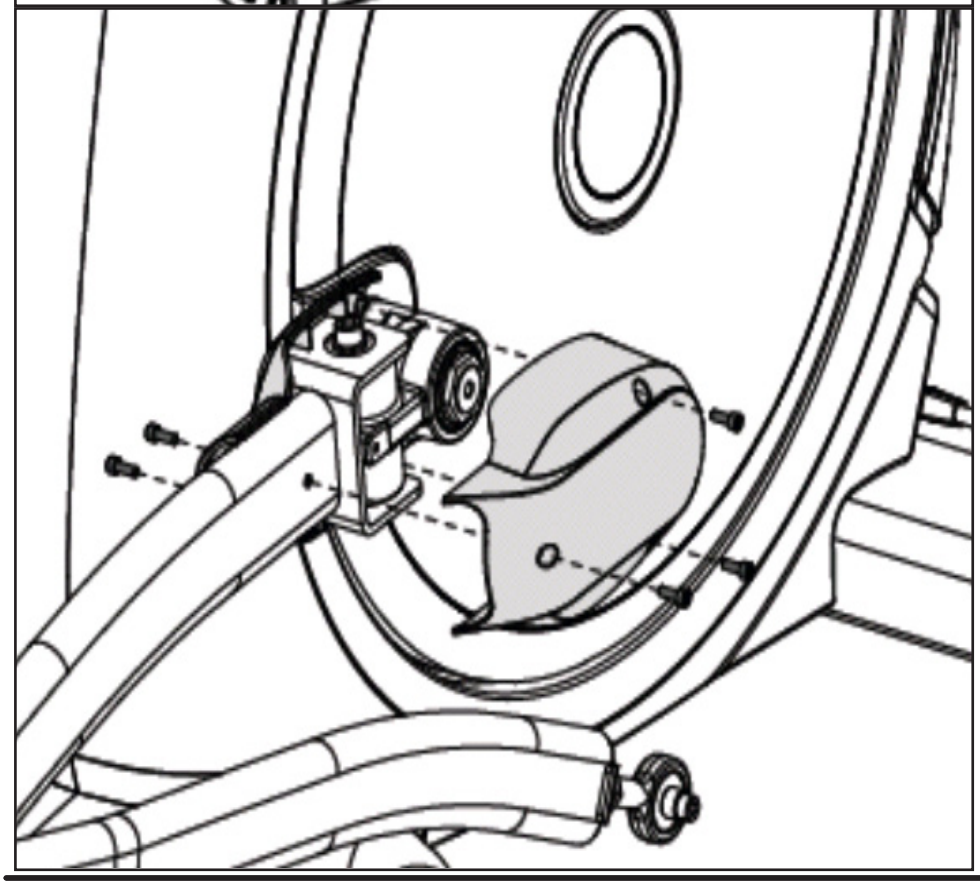
STEP 3 - PINK HARDWARE BAG



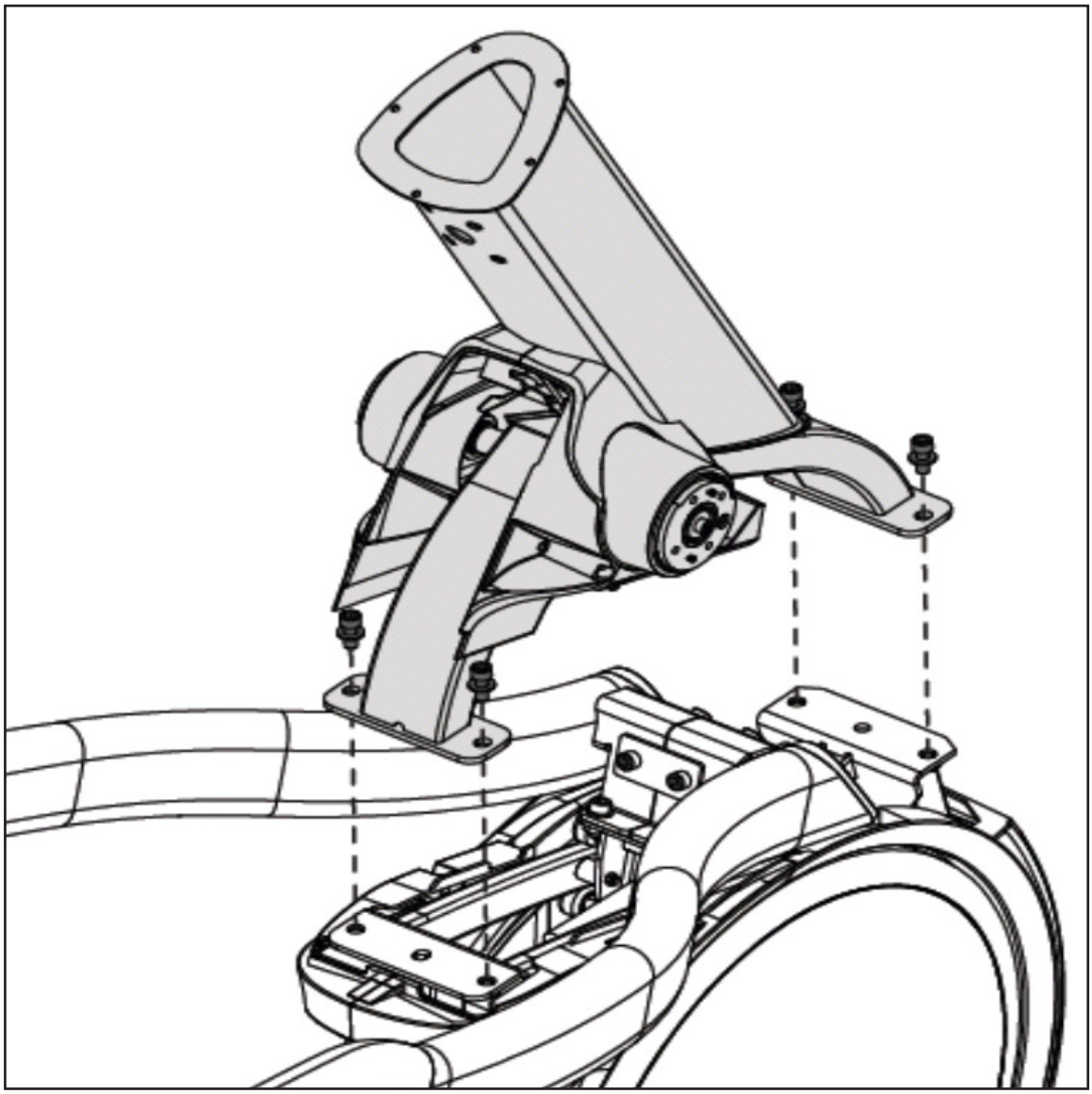
STEP 4 - GREEN / YELLOW HARDWARE BAG



Torque this bolt to 80 N-m.

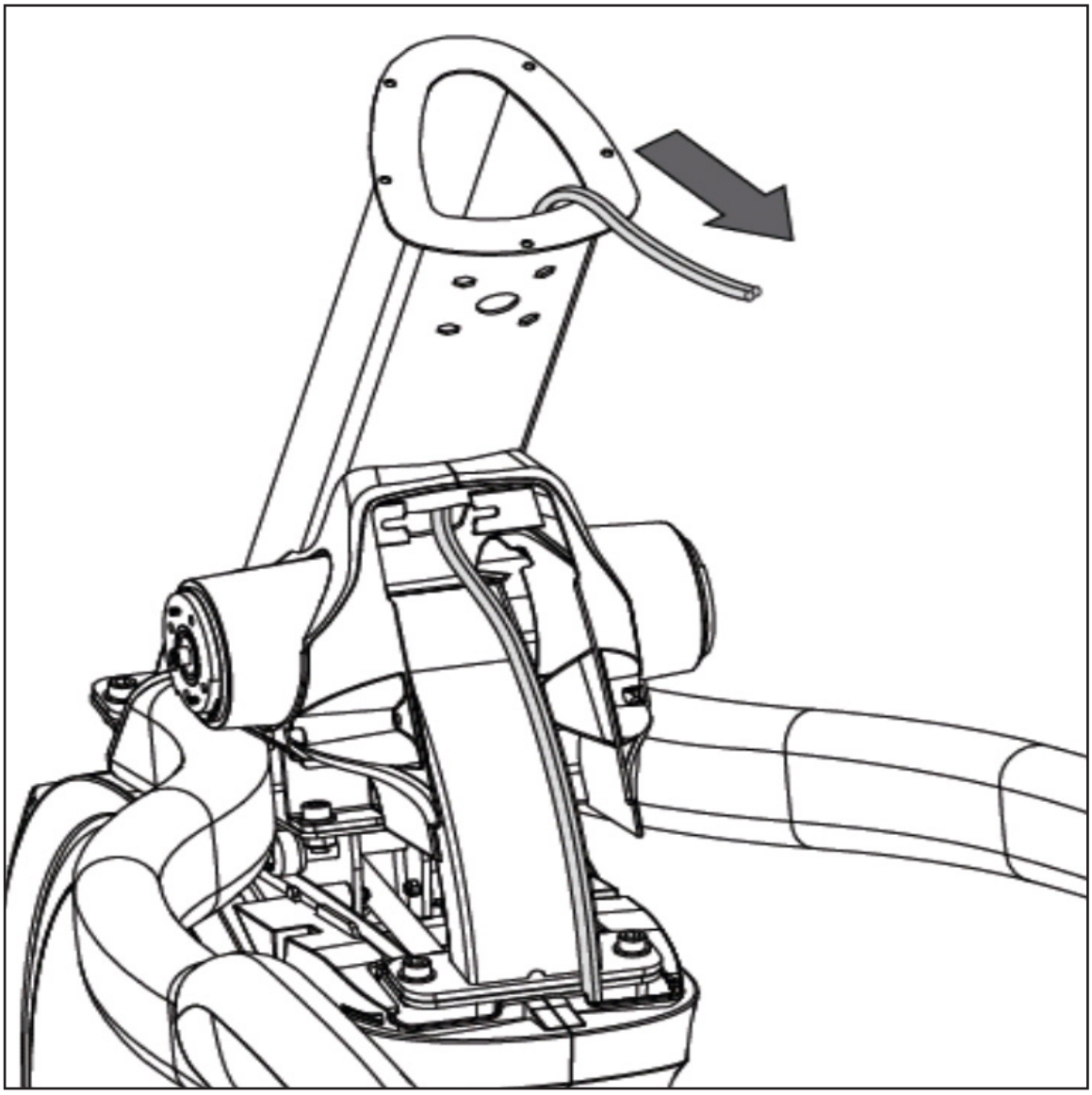


STEP 5 - RED HARDWARE BAG



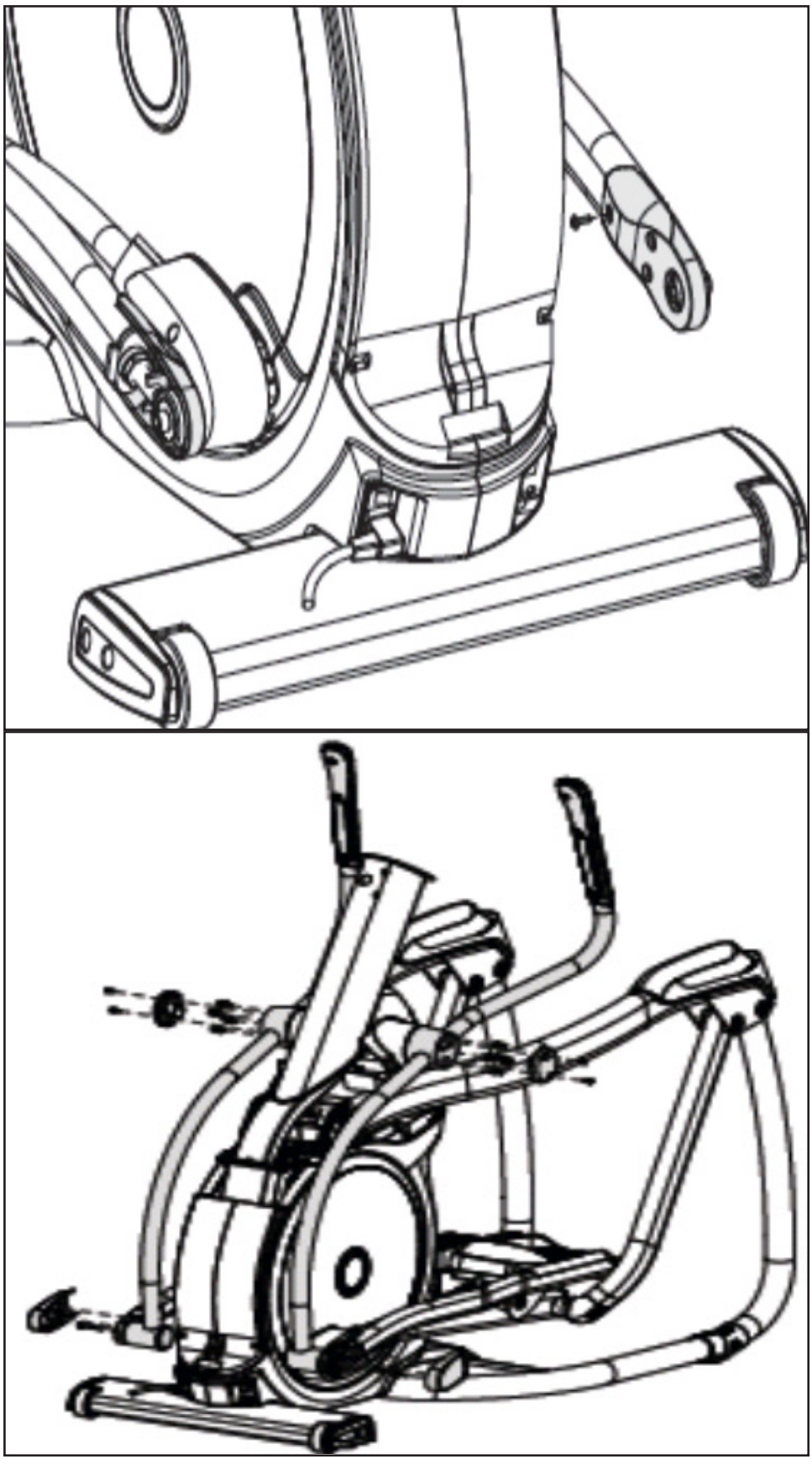
10.3 ASCENT TRAINER ASSEMBLY STEPS - CONTINUED

STEP 6



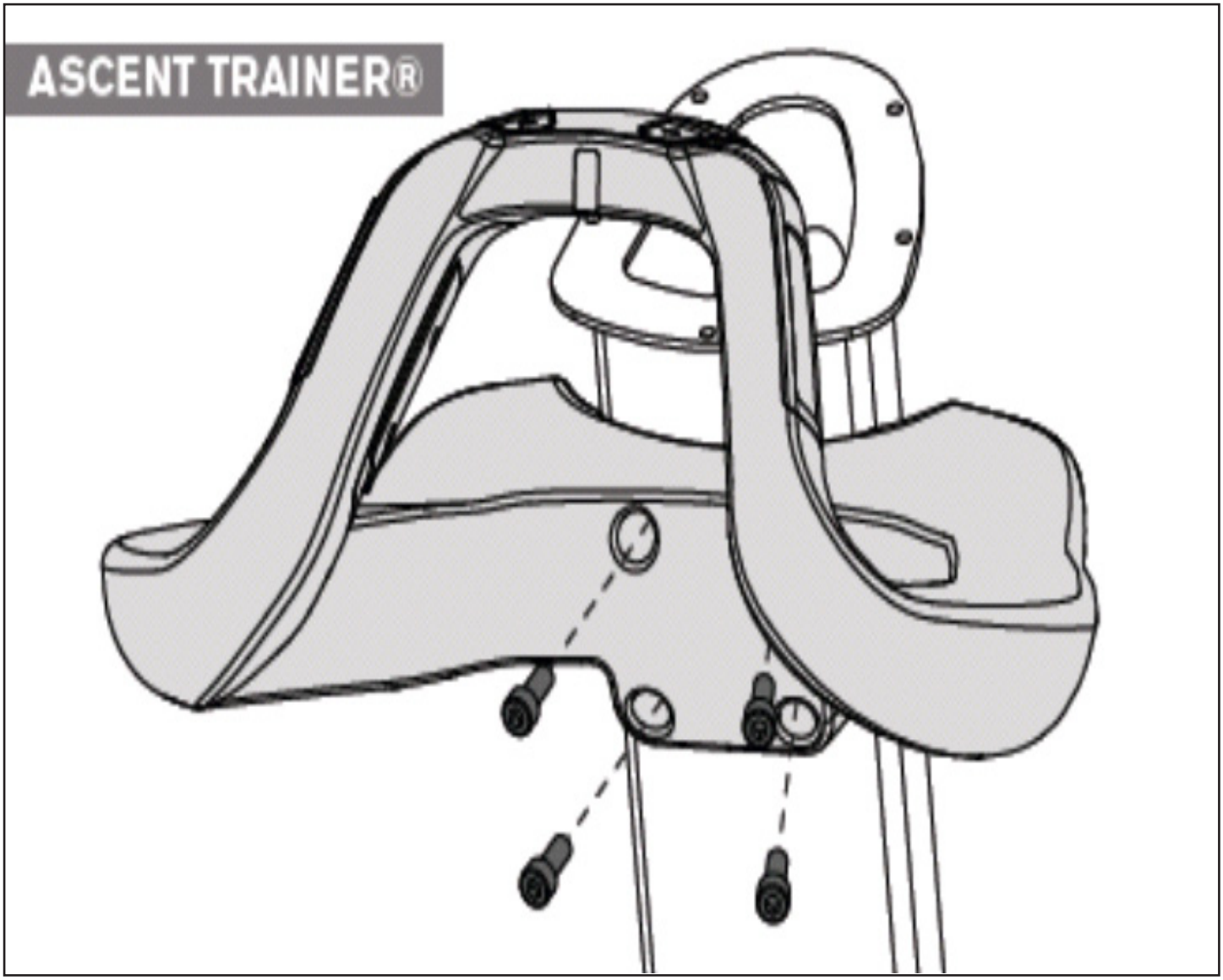
10.3 ASCENT TRAINER ASSEMBLY STEPS - CONTINUED

STEP 7 - BLUE / BLACK HARDWARE BAG

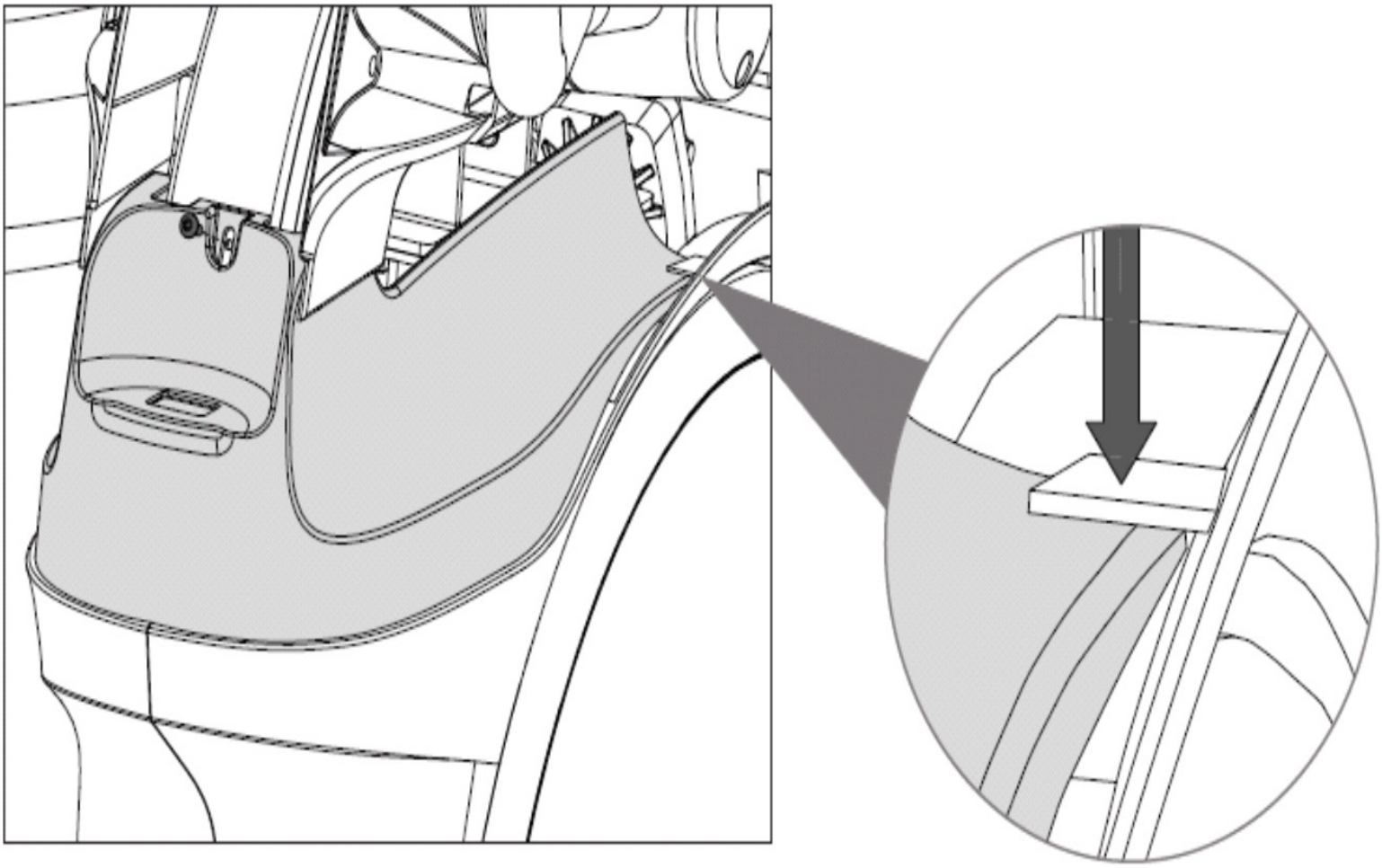


10.3 ASCENT TRAINER ASSEMBLY STEPS - CONTINUED

STEP 8 - WHITE HARDWARE BAG

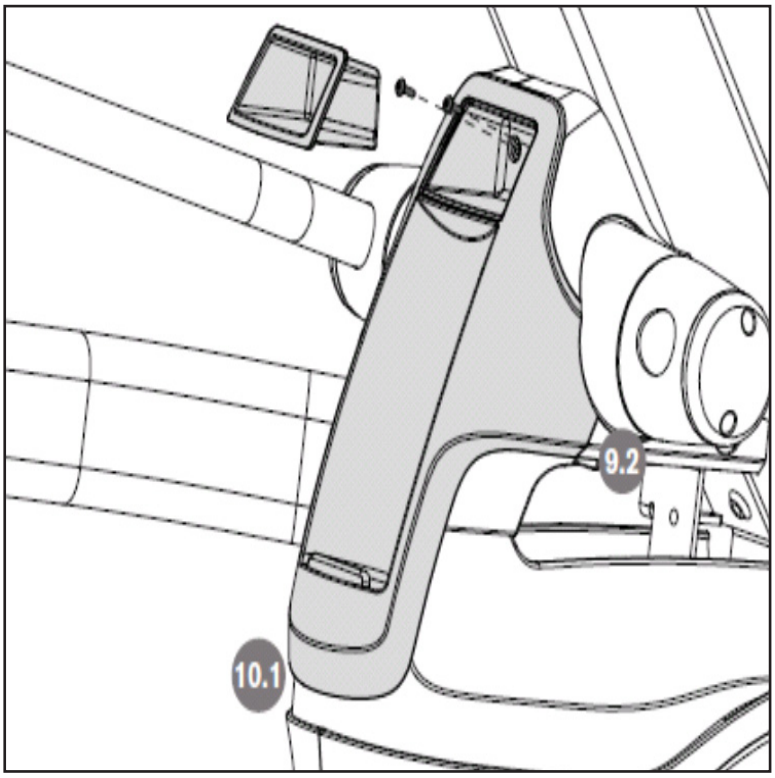


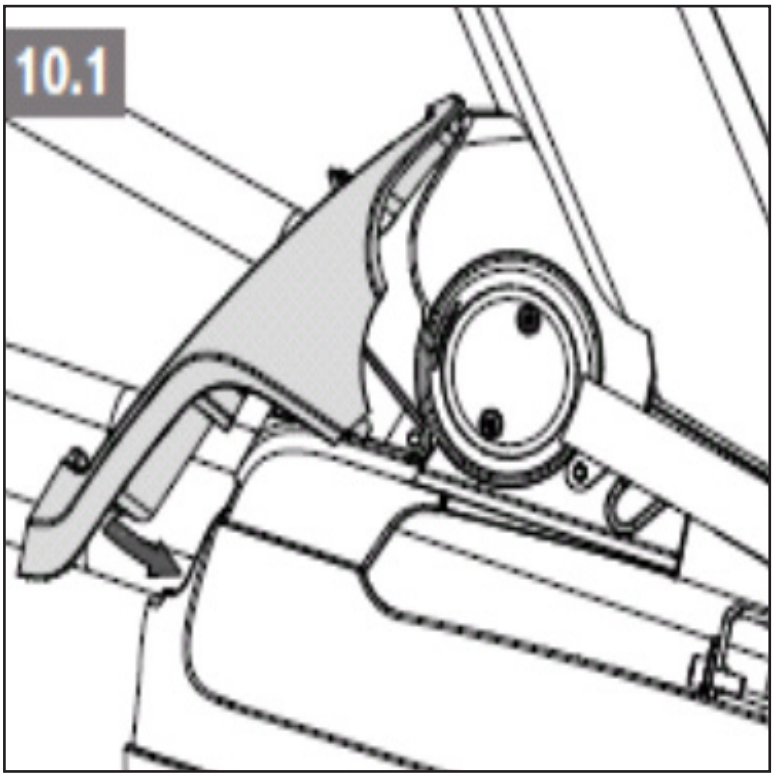
STEP 9 - PINK HARDWARE BAG

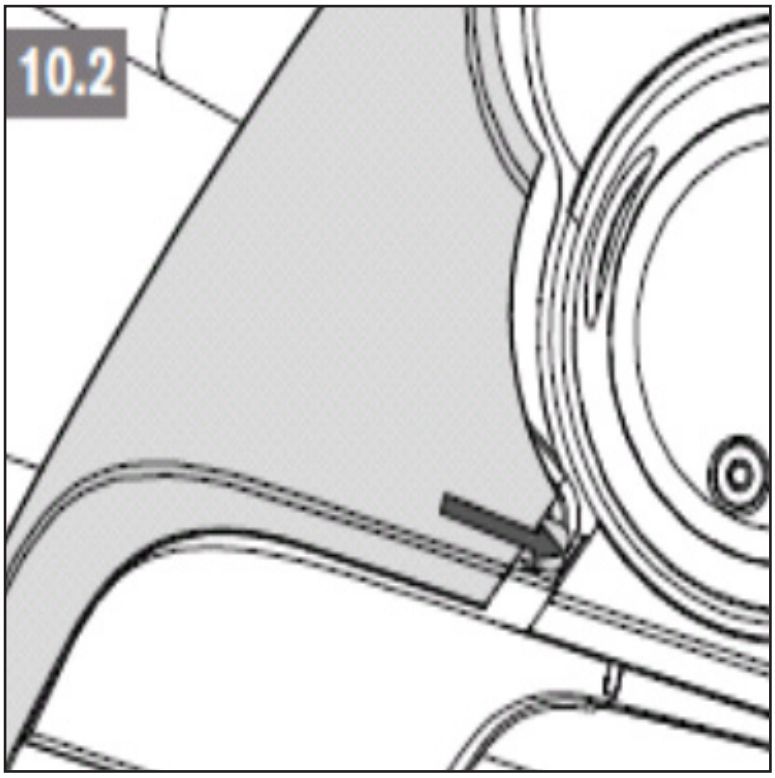


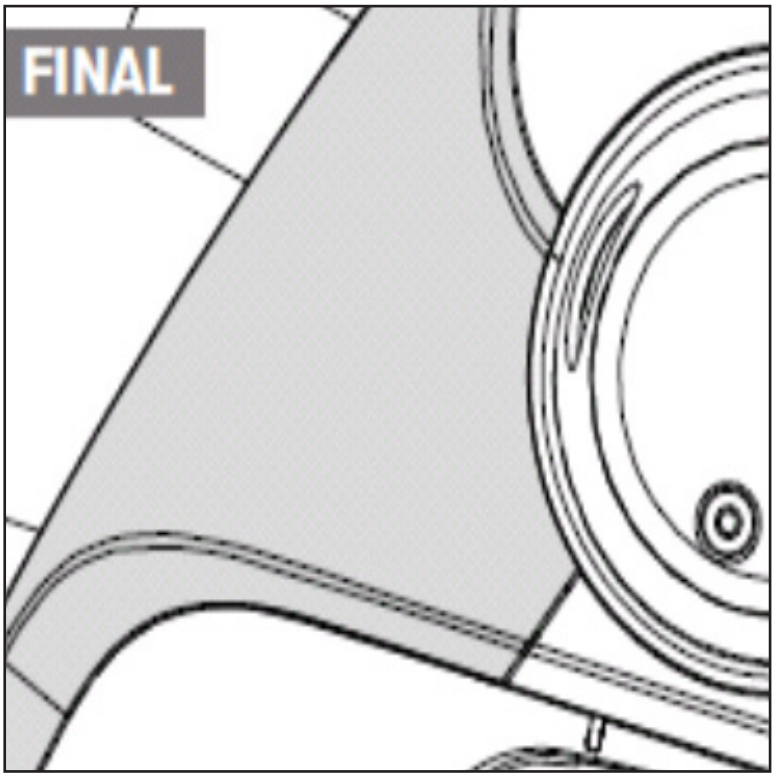
10.3 ASCENT TRAINER ASSEMBLY STEPS - CONTINUED

STEP 10 - PINK HARDWARE BAG



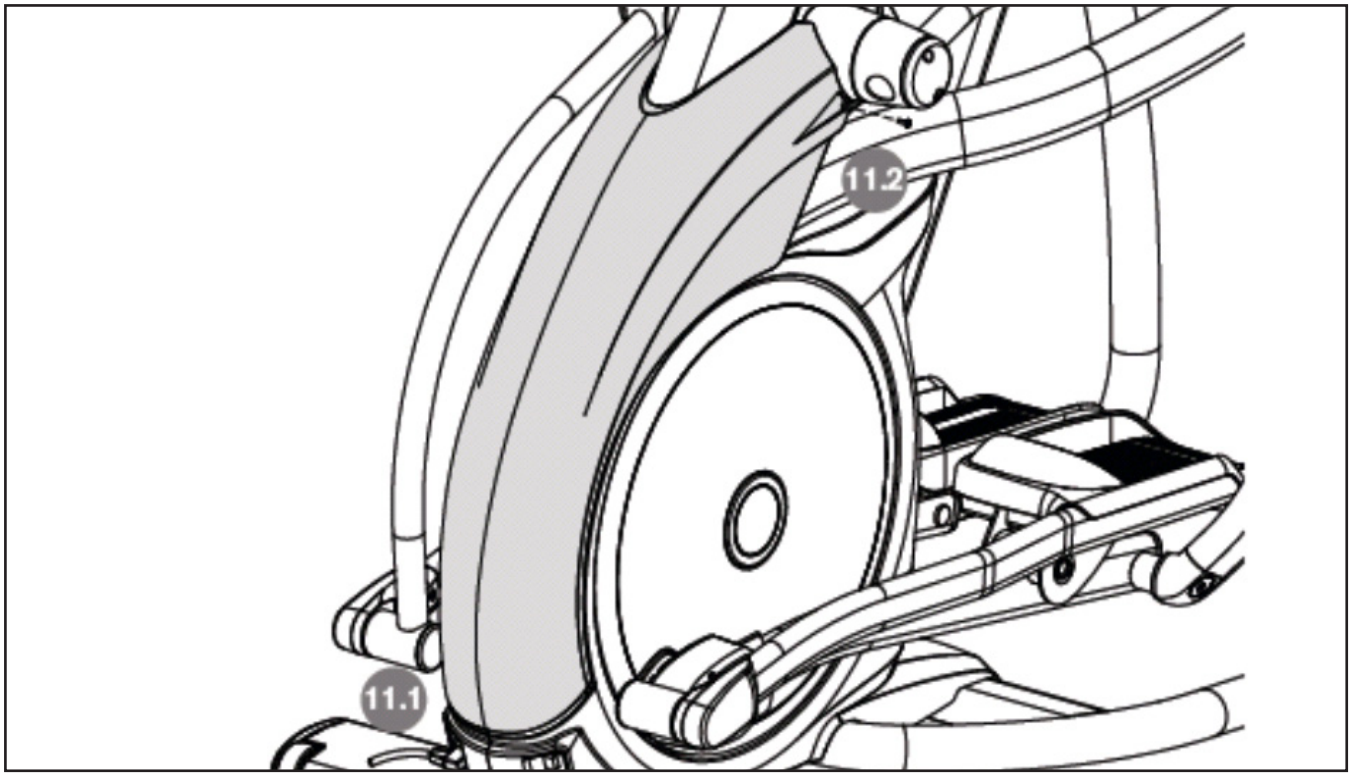


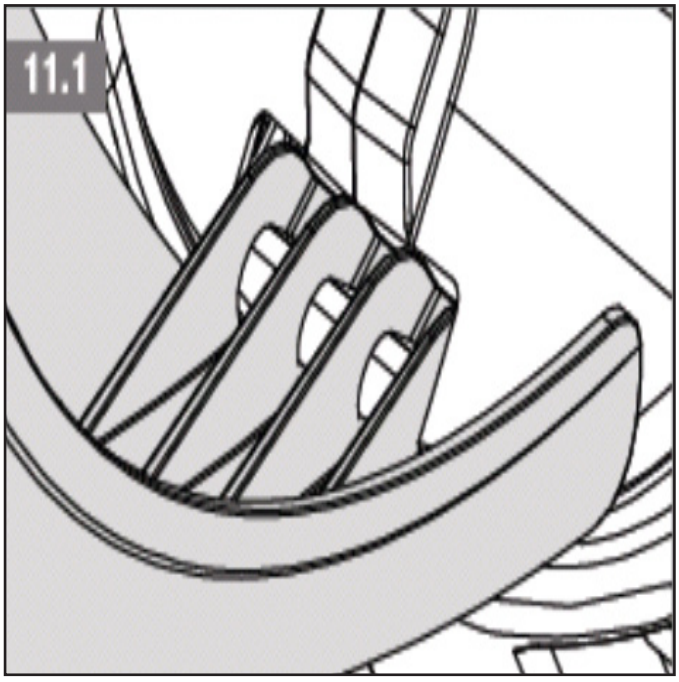


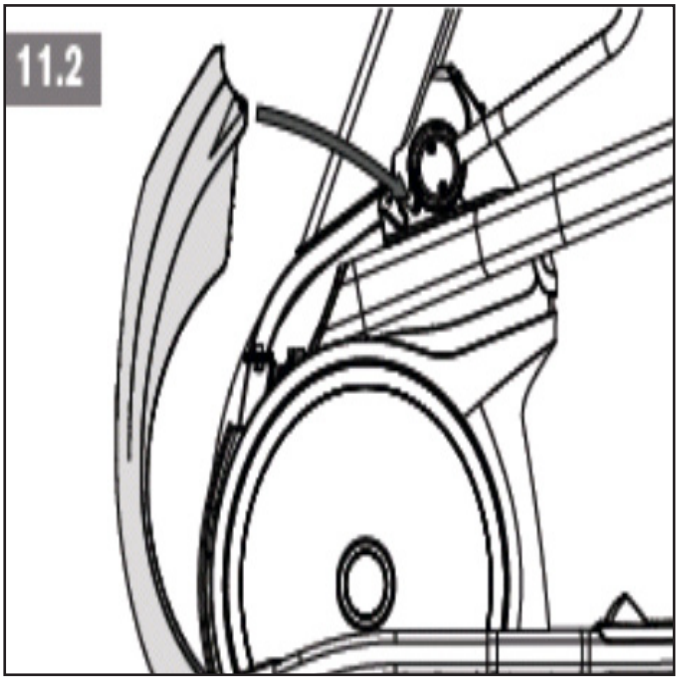


10.3 ASCENT TRAINER ASSEMBLY STEPS - CONTINUED

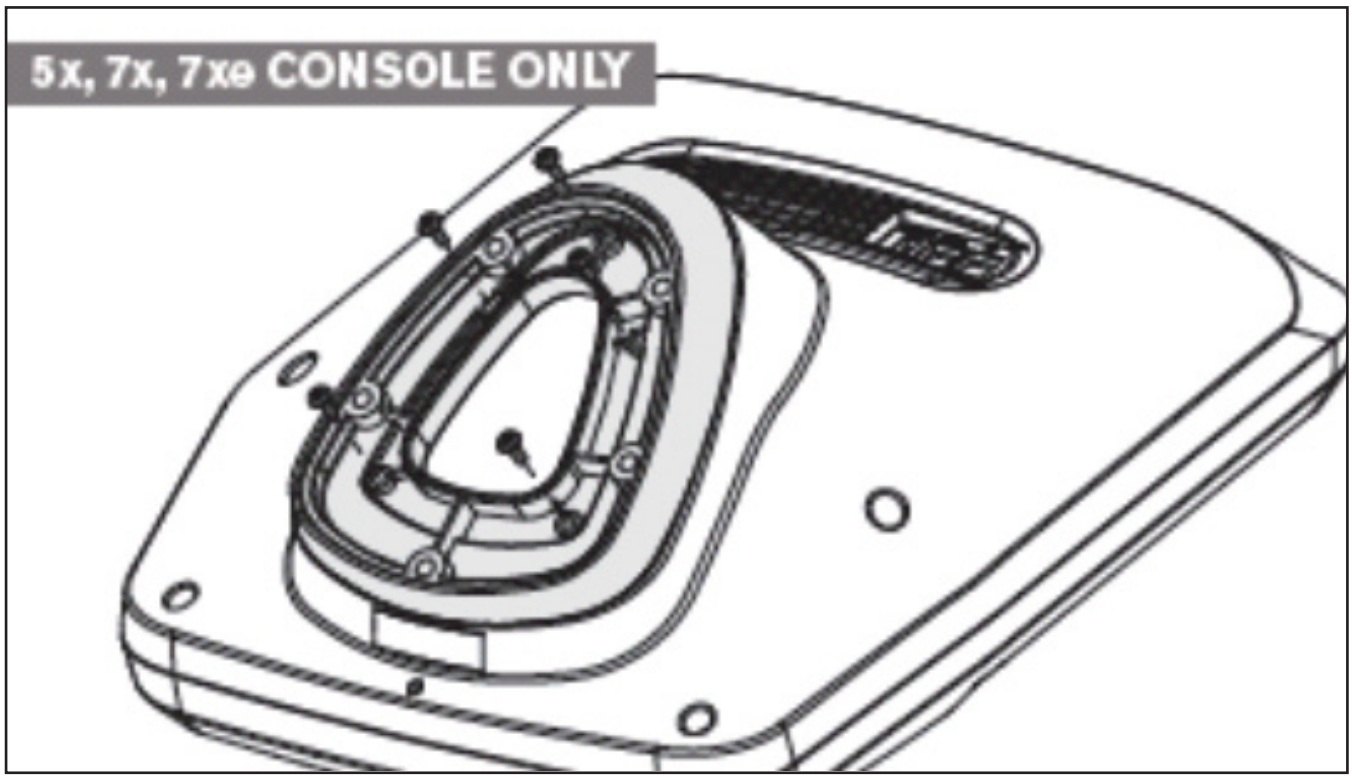
STEP 11 - PINK HARDWARE BAG

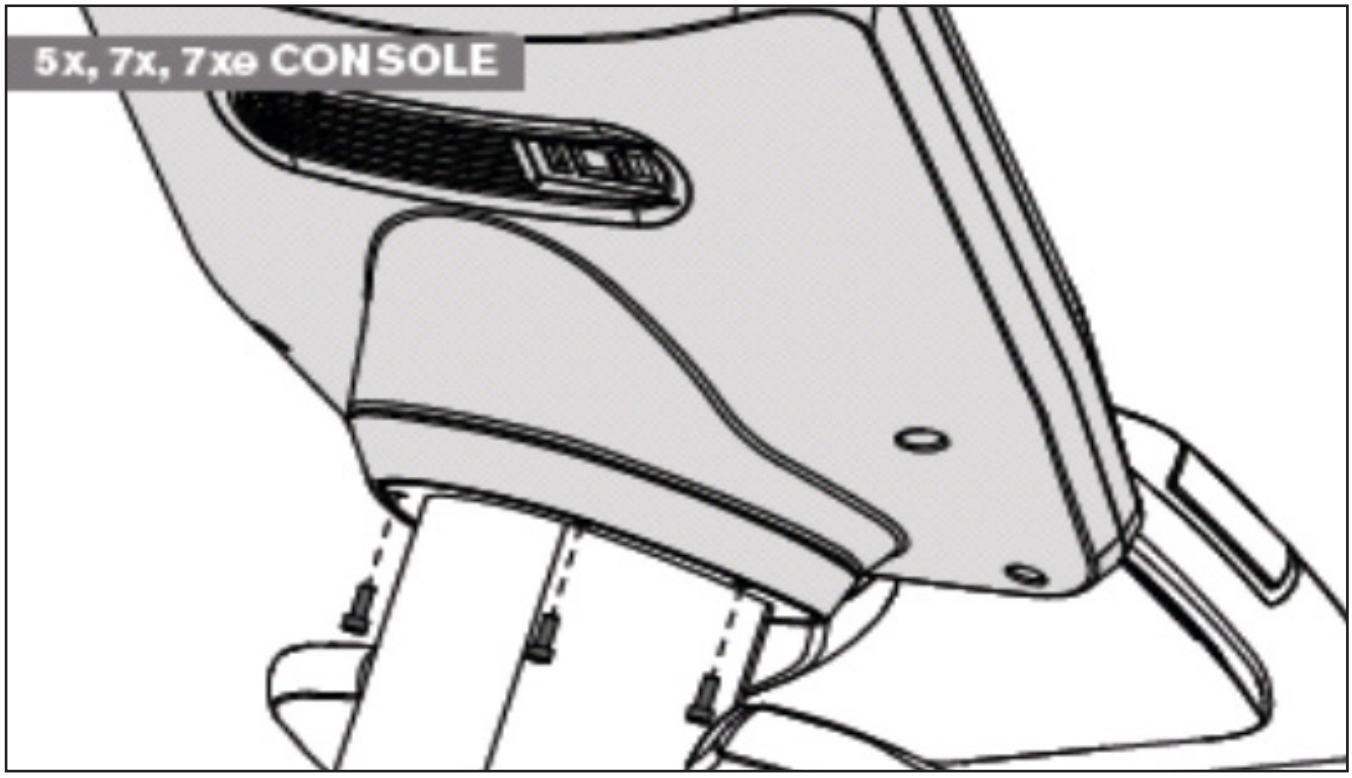






STEP 12 - PINK HARDWARE BAG





10.4 STABILIZING THE ASCENT TRAINER

STABILIZING THE MATRIX A7XE-04 ASCENT TRAINER

The Matrix Ascent Trainer should be level for optimum use. Once you have placed your unit where you intend to use it, raise or lower one or both of the adjustable levelers located on the bottom of the frame. Use a 6mm Allen wrench through the access hole at the rear hinge joint on both sides (Figure A).

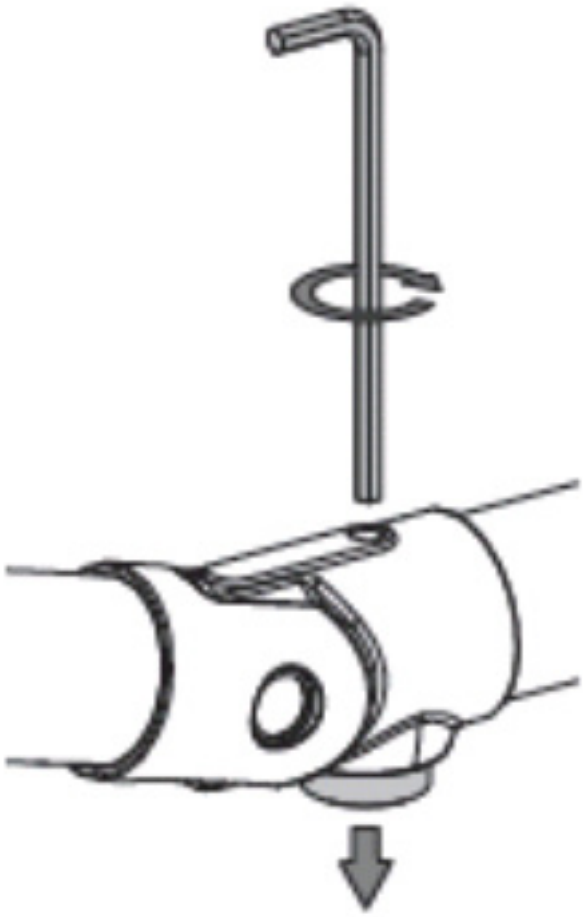


FIGURE A

10.5 TV PROGRAMMING INSTRUCTIONS

Once the cardio equipment has been installed, and proper power and cable wiring is provided, The Television must be programmed to the club's channels and settings.

Auto Scan - An auto scan will search for channel signals from the coax cable. It will tune in all channels that provide a signal.

1. Press ENTER, 1, 0, 0, 1, ENTER on the number keypad to enter Manager Mode.
2. Press TV on the display (Figure A).
3. Press SETUP on the display (Figure B). A TV will appear.

FIGURE A

FIGURE B

4. Press the - key on the number keypad and a Menu will appear on the TV (Figure C). ***NOTE:*** Once the Menu is present on the screen, the following buttons must be pressed quickly, or the Menu will minimize after 5 seconds of no key strokes.
5. Use the VOLUME UP or DOWN keys to move horizontally in the Menu and the CHANNEL UP and DOWN keys to move vertically.
6. Use the VOLUME UP or DOWN keys to scroll the cursor to Channel on the top right of the Menu (Figure D).

FIGURE C

FIGURE D

7. Use the CHANNEL UP or DOWN keys to scroll down to Auto Scan, then press the VOLUME UP or DOWN keys to enter the Channel Scan sub-menu (Figure E).
8. Use the CHANNEL UP or DOWN keys to scroll to Start To Scan, then press the VOLUME UP or DOWN keys to start the channel scan (Figure F).

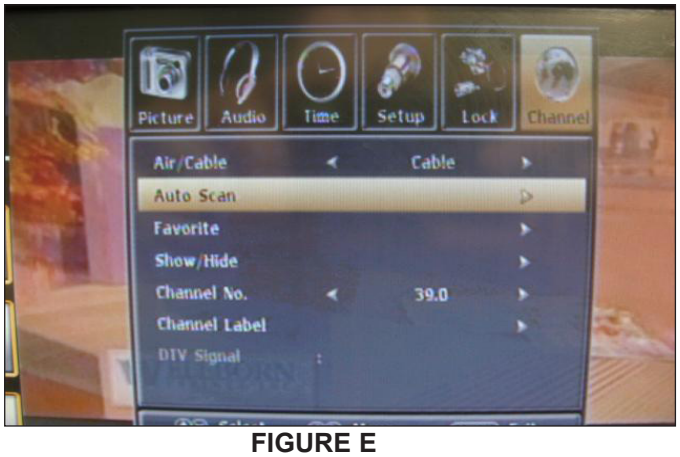


FIGURE E

FIGURE F

10.5 TV PROGRAMMING INSTRUCTIONS - CONTINUED

Auto Scan (continued):

9. If the channels are not coming in clearly after a channel scan (or if only some channels come in), follow Steps 4-7 to enter the Auto Scan sub-menu. Use the VOLUME UP or DOWN keys to change the Cable System to match the club's incoming frequency (Figure G), then re-run Auto Scan.
10. If the channels are coming in clearly, press the HOME key to return to normal function (Figure H). If some channels are still not coming in, are blurry, or are not scanning, follow the procedure below for adding / deleting a single channel. If no channels are coming in, see the troubleshooting in Chapter 2.

FIGURE G

FIGURE H

Adding or Deleting a Single Channel - At times the Channel Scan can pick up channels that do not have a strong enough signal to come in clearly or will fail to pick up channels that do come in clearly. Use the following procedure to manually add or delete a channel.

1. Follow Steps 1-4 in the Auto Scan instructions to access the TV Menu.
2. Use the VOLUME UP or DOWN keys to scroll to Channel on the top right of the Menu.
3. Use the CHANNEL UP or DOWN keys to scroll to Show / Hide (Figure I). Then use the VOLUME UP or DOWN keys to enter the Show / Hide sub-menu.
4. The Show / Hide sub-menu will show a list of channels available (Figure J). Channels with a check mark are scanned in and should show up during normal TV usage.
5. To remove or add any channel, simply scroll to the channel using the CHANNEL UP or DOWN keys, and then press ENTER to add or delete a check mark (which adds or deletes the channel).
6. Once the desired channels are scanned in, press HOME to return to normal operation.

FIGURE I

FIGURE J

10.5 TV PROGRAMMING INSTRUCTIONS - CONTINUED

Closed Caption - Clubs will vary on whether they request the closed caption to be turned off or on. Please discuss this option with the club manager prior to adjusting this setting.

1. Press ENTER, 1, 0, 0, 1, ENTER on the number keypad to enter Manager Mode.
2. Press TV on the display (Figure K).
3. Press SETUP on the display (Figure L). A TV will appear.

FIGURE K

FIGURE L

4. Press the - key on the number keypad and a Menu will appear on the TV (Figure M).
5. Use the VOLUME UP or DOWN keys to scroll the cursor to Setup on the Menu (Figure N).

FIGURE M

FIGURE N

6. Use the CHANNEL UP or DOWN keys to scroll the cursor to Closed Caption, then press the VOLUME UP or DOWN key to enter the Closed Caption sub-menu (Figure O).
7. Use the VOLUME UP or DOWN keys to toggle the CC Mode from ON to OFF or vice versa as needed (Figure P).
8. Press HOME to return to normal function.

FIGURE O

FIGURE P

11.1 SOFTWARE UPGRADE PROCEDURE

**** An AC power cord is required to update software in the field. Plug in the unit prior to beginning the update procedure.***
***** All plug ins must be removed prior to updating software (for example, no IPod can be connected). Do not use the console while an update is in process.***
****** If VA is installed on the console, wait until the Virtual Active icon on the standard display picture turns red prior to updating the software.***

1) Five files should be present on the USB drive. These are: DrummuDeploy.cab, NK, IO_XXX, updateLMM.confige, and Extract_CE.
2) Turn on the power to the ascent trainer, wait until the standard display picture has been come up (Figure A).
2) Enter Manager Mode by pressing ENTER, 1, 0, 0, 1, ENTER on the lower keypad.
3) Record the Accumulated Mileage, Accumulated Time, and Serial Number. ***NOTE:*** The information can be lost during the update procedure and should be recorded so that the information can be entered into the newly updated console.
4) Press the HOME key to return to the standard display picture.
5) Wait until the Virtual Active icon turns RED. Insert the USB Drive into the USB port in the console (Figure B).

FIGURE A

FIGURE B

6) After a few seconds, the ascent trainer will auto run the upgrade processing. The achieved percentage of the scheduled process will be displayed in the bottom right corner of the display (Figure C).
7) When the update is complete, the display will ask you to remove the USB drive (Figure D). Once the USB drive is removed, turn off the ascent trainer and wait 10 seconds, then turn the ascent trainer back on.
8) Enter Service Mode by pressing ENTER, 3, 0, 0, 1, ENTER on the lower keypad and check that the Machine Type is correctly set for ascent trainer and that the Service On Boot setting is NO. If the Machine Type is not correct, press ENTER, 3, 0, 0, 2, ENTER. This will do a software parameter reset. Then change the Machine Type. Once the Machine Type is changed cycle unit and console power. Press the HOME key to return to the standard display picture if the Machine Type is correct.
9) Also enter the values recorded in Step 3 in Service Mode (if needed).

Matrix Fitness Update Manager
Updating OS. DO NOT power down the equipment during this update.
Please allow several minutes for the update to complete.
100 %

FIGURE C

Matrix Fitness Update Manager
The update is complete, please remove the USB drive. After removal, cycle power on this equipment.
Image Downloading --- 100 %
100%

FIGURE D

9) Enter Manager Mode by pressing ENTER, 1, 0, 0, 1, ENTER on the lower keypad. Press SOFTWARE VERSIONS to verify that the new software version is shown on the screen. Re-load software if any prolbems are seen.

NOTES

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